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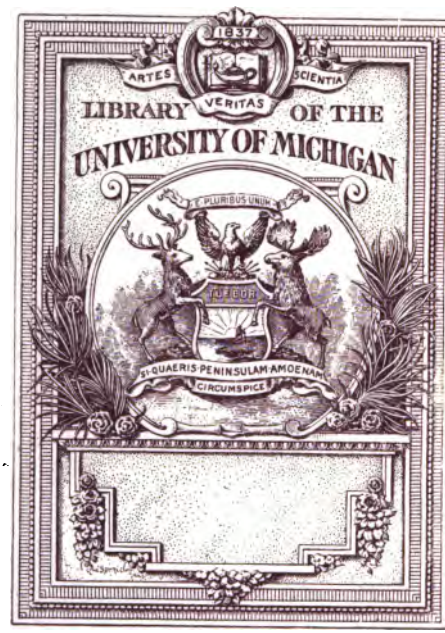
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THE OHIO STATE MEDICAL ASSOCIATION

TRANSACTIONS

OF THE

FIFTY-EIGHTH ANNUAL MEETING

HELD AT

DAYTON, OHIO

JUNE 3, 4, 5, 1903

CLEVELAND
PRESS OF J. B. SAVAGE
1903

THE

FIFTY-NINTH ANNUAL MEETING

OF THE

OHIO STATE MEDICAL ASSOCIATION

WILL BE HELD AT

CLEVELAND, MAY 18, 19, 20, 1904

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At the Eighteenth Annual Meeting of the Ohio State Medical Society, the following resolution was adopted:

Resolved, That the publication of any address, prize essay, or other paper, by this Society, is no evidence of its endorsement of the sentiments therein contained.

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CHAPTER I—ADDRESSES

The Significance of Jaundice as a Symptom in Disease of the Biliary Tracts

BY JOHN B. DEAVER, M. D., PHI ADE PHIA, PA.

Surgeon in Chief, German Hospital

It is my very great pleasure to acknowledge the compliment of being chosen to address the Ohio State Medical Association upon a surgical as well as a medical subject. As the topic of my address—"The Significance of Jaundice as a Symptom in Disease of the Biliary Tracts"—appeals to the medical man as well as to the surgeon, and especially so as these cases, as a rule, first consult the family physician, I am sure my remarks will be *apropos* to the occasion.

The presence of bile in the circulating blood and its appearance in the skin, mucous membranes, exudates and excretions is a condition frequently observed, both in medical and surgical practice. To the surgeon, jaundice too often means more than the mere indication of some lesion of the biliary apparatus; it indicates a neglected condition or a disease which has advanced to the point when surgical interference is useless. To many medical men the appearance of the biliary coloring matter is sufficient evidence of a gall-stone in the common duct or of hypertrophic cirrhosis of the liver.

It is the purpose of the writer to call attention to the significance of jaundice as a symptom in diseases of the biliary tracts, and to the value placed by surgeons upon its presence when attempting to diagnose the pathology of affections of the liver and its ducts.

You are of course aware of the manner of the biliary secretion of the liver, its passage under low pressure to the duodenum, the function of the gall-bladder as a reservoir a

the orifice of the common bile-duct opening into a portion of the human body which is normally teeming with micro-organisms.

The biliary ducts are comparatively small in diameter, with frequent curves and open by a minute orifice into the duodenum. This further aids any tendency to obstruction. The relations of the portal lymphatics and the head of the pancreas are so intimate to the common duct that their enlargement may easily obstruct the canal. Infection may reach the liver, not only directly through the common duct, but by means of the portal circulation; such infection may be carried from any part of the intestinal canal.

With such a multiple of ways which may cause obstruction, it is necessary that every factor in the history of the patient be examined and weighed, and that jaundice be regarded as a link only in the chain of evidence which may point to a certain disease.

The etiology of icterus may be considered under (a) disturbances of the liver-cells and (b) mechanic obstructions. The latter cause is by far the more frequent and is the one which calls for surgical intervention in nearly every instance.

I will dwell but briefly with the lesions due to disturbance of the hepatic cells. They are almost exclusively within the domain of the internist.

Bile is normally poured into the bile capillaries by the hepatic cells, and when the latter are diseased or disturbed the bile may be emptied into the blood along with the sugar and urea which is normally secreted by the liver-cells. Liebermeister and Pick have claimed that such a perversion of the bile pigment may occur from functional causes, even without demonstrable pathologic disturbances.

Pick, indeed, explains even the mechanic forms by nervous influences, or a paracholia, whereby a reflex is carried from the nervous supply of the gall-bladder to the secretory nerves of the liver.

Various poisons acting either upon the blood or upon

the liver-cells themselves may give rise to jaundice. But such conditions do not interest the surgeon and it will suffice to mention Hunter's classification:

1. Jaundice produced by the action of poisons, such as phosphorus, arsenic and snake venom.

2. Jaundice met with in various specific fevers and conditions, such as yellow fever, malaria (remittent and intermittent), pyemia, relapsing fever, typhus, enteric fever and scarlatina.

3. Jaundice met with in various conditions of unknown, but a more or less obscure infectious nature and variously designated as "epidemic," "infectious," "febrile," "malignant jaundice," "*icterus gravis*," "Weil's disease" and "acute yellow atrophy of the liver."

In addition to this grouping it might be well to call your attention to the jaundice frequently associated with severe hemorrhage, starvation or lowered blood-pressure in the portal or hepatic vessels with increased tension in the smaller bile ducts. The latter condition is believed to follow certain forms of psychic irritation.

This brings us to the second group, or obstructive jaundice, frequently styled hepatogenous icterus and one having a special interest to the surgeon.

In order to approach the subject with some degree of order and clearness it seems advisable to discuss the significance and appearance of icterus from the etiologic standpoint. I will, therefore, divide the lesions of the biliary tract causing obstructive jaundice into four groups.

1. Inflammatory and infectious.
2. Cholelithiasis and its results.
3. Neoplasms of the gall-bladder and ducts.
4. Tumors or pathologic conditions of neighboring organs exerting pressure.

The so-called catarrhal jaundice which we so frequently see as a consequence of a gastrointestinal catarrh may vary in degree from a mild and transient yellowing of the skin to a deep and long persistent coloring. Such attacks rapidly

subside as a rule, with but little treatment, but the ever-present bacterial activity sometimes permits a suppurative cholangitis, pancreatitis, cholelithiasis, hydrops of the gall-bladder, etc., to take place, and the original catarrhal condition is allowed to fog the perception of an otherwise easily apparent lesion.

The extension of the catarrhal process from the duodenum into the ducts causes a desquamation of their epithelium with a secretion of thick mucus. In the gall-bladder this may result in the formation of gall-stones, in the ducts and especially the hepatic ducts gall-stones may also be formed, or else the collection of the mucus into plugs may simulate impacted calculi, though I think the importance of such obstructions by mucus is much over-rated.

The history of these cases begins with the history of an over-loaded stomach, the drinking of iced drinks or the abuse of alcohol followed by nausea, vomiting, anorexia, and a feeling of sensitiveness over the stomach. The tongue becomes coated; headache, fever and constipation are observed. In about three days the skin begins to appear yellow, the urine becomes dark amber in color, and the brown appearance of the stool gives way to a lighter and lighter yellow. Pain is nearly always absent, and its presence should lead to a very careful observation of the course of the disease. In those cases with persistent jaundice for several weeks, the liver may become slightly enlarged and tender, or a feeling of oppression over the hepatic area may be complained of by the patient.

When treatment has been successful, the gastroduodenitis ceases, the urine becomes normal and finally the yellow discoloration of the skin and mucous membranes fades away. Attacks may recur, but except to those addicted to alcoholic excesses, such recurrences should be viewed with great suspicion and chronic gall-stone obstruction ruled out of the diagnosis for a certainty.

While it is probable that most of the cases of so-called catarrhal jaundice are infectious in origin, this cannot

be positively proved. Suppurative cholangitis may follow the simple catarrhal form from the invasion of the duct by pyogenic microorganisms, especially by virulent types of the colon bacillus.

While cholecystitis and simple catarrh of the ducts is a very frequent incident in enteric fever, I have but rarely been called upon to operate for the severer suppurative variety.

In suppurative cholangitis icterus is variable in character and dependent upon the amount of obstruction.

In general it may be stated that the jaundice is pronounced, increasing in intensity nearly to the degree observed in malignant disease. The liver becomes much enlarged, smooth and tender to pressure. The purulent nature of the disease becomes manifest by the well-marked character of the fever, the sweating and the chills. Diarrhea, gastric disturbances, anemia and loss of strength are frequently observed.

Cholelithiasis is frequently associated, and the calculi are usually forced out of the gall-bladder into the common duct. Such cases are very fatal in their termination as the obstruction to the bile-flow also causes retention of pus with diffusion of the purulent process and multiple abscesses of the liver as a result.

The following case is a good illustration of the jaundice occurring in the suppurative type of the disease due to infection with the streptococcus:

R. R., aged 49, married, is a laborer by occupation. One brother died of phthisis. The previous personal history is absolutely negative. For one week before admission, the patient remained at home on account of general indisposition, deranged digestion, loss of appetite, etc. Thirty hours before admission he was seized with a sharp pain along the rib margin on the right side, and in the epigastric region. Nausea and vomiting followed, the latter consisting of a bitter green material (bile). The bowels were constipated, there was anorexia, but there was no jaundice or pain in the shoulder blade. He was admitted to the German Hosp-

on April 27, 1903, complaining of a dull pain over the region of the gall-bladder. He was well-nourished, of good musculature and a fair abundance of adipose tissue. He suffered from granular eye-lids. The tongue was coated, the scleræ were clear, and there was no jaundice. The right rectus muscle was rigid, most markedly so in its upper half. The gall-bladder region was tender, but no distinct tenderness could be observed over the gall-bladder. A mitral systolic murmur transmitted to the axilla was present.

April 28, 1903. The tenderness in the gall-bladder region has subsided, as has also the rigidity. Slight tenderness can be detected to deep pressure over the right side of the epigastrium and over the right iliac fossa. The liver was slightly enlarged, the stools were brown in color. The leukocytes were 15520 per cmm., and the urine revealed a specific gravity of 1.030 with albumin. No casts, sugar nor biluria were found.

April 29, 1903. The scleræ are slightly yellow. The gall-bladder region is tender, this area extending nearly to the median line.

April 30, 1903. Jaundice becomes pronounced. Bile is present in the urine together with granular casts. There is tenderness over the gall-bladder. The stools are light yellow in color.

May 1, 1903. Leukocytes number 20120 per cmm. A fluoroscopic examination reveals a shadow over the gall-bladder region and diffused downward.

May 2, 1903. Jaundice is very deep, the stools are clay colored, and the urine is a deep amber color.

The temperature on admission was 100 3/5° and the pulse was 64. There was a marked septic type of fever varying from 99° to 103° during the next few days and the pulse-beat varied from 80 to 116.

An operation was performed on May 2, 1903, under ether anesthesia. An incision seven inches long was made in the right rectus muscle, the peritoneum was opened and the intestines were packed off by flat marine sponges. The liver was found to be enlarged and the gall-bladder was small and distended. The latter was aspirated of a small amount of dark green inspissated bile containing two very fine fragments of a gall-stone. This bile on subsequent cul-

ture revealed the *streptococcus pyogenes* in pure culture. The common duct was opened and examined both by a probe and finger for the presence of calculi, and in the common duct a stone the size of a millet-seed was found.

The stones in this case were probably quiescent in the gall-bladder until the attack of suppurative cholecystitis and cholangitis. The jaundice was not apparent until the small stone had been driven out of the gall-bladder into the already swollen common duct. The hepatic duct was drained through the opening made in the common duct by a rubber tube, and the gall-bladder was likewise drained by a tube, both being held in place by catgut sutures. Gauze drainage was then placed above and below the drainage tubes, and the wound was closed with interrupted worm-gut sutures. Both tubes drained into a bottle at the side of the patient. Recovery from the operation was complete and jaundice disappeared in two weeks after operation. The temperature was normal three days after operation and remained so. The bile drained from 75 to 155 cc. each 24 hours for 10 days, when the drainage tubes were removed.

At the present date (May 25th) the patient is convalescing, with a fistula still discharging.

Abscess of the liver may or may not give rise to jaundice, depending upon the amount of compression of the biliary ducts; as a rule it is absent. In the latter class of cases the scleræ and skin present a muddy, grayish yellow appearance, resembling that of cirrhosis of the liver which may be mistaken for jaundice.

The early enlargement of the liver, tenderness over its area increased by respiration, pain in the shoulder, fever and leukocytosis, which may, however, be absent, anemia and prostration are the earliest symptoms observed. If jaundice then follows and is at all marked, a complicating cholelithiasis should be suspected.

It has not been so very long ago when the presence of calculi in the biliary passages without jaundice was regarded as a rarity by the majority of practicians of medicine. At

the meeting of the Congress of American Physicians and Surgeons held a few weeks ago, Kehr, of Halberstadt, stated that in his extensive experience, "Jaundice is absent in 80 to 90% of gall-stone cases and even in stones lodged in the common and hepatic ducts the jaundice is absent in 33%, the stones, not only small ones, but even those attaining the size of walnuts, may remain latent in the common duct not only for weeks, but for months and years."

To the fact that in the majority of cases of gall-stone disease the calculi are in the gall-bladder is due to the large percentage of cases without jaundice. They may remain latent in the gall-bladder during the remainder of the life of the patient and never give rise to any inconvenience whatever, neither pain nor jaundice; but should an inflammatory attack induce their propulsion from the gall-bladder, jaundice may occur in several ways. The cystic duct is not only narrow in caliber but its mucous membrane is arranged in a spiral form, acting as a valve and tending to favor the lodgement of a stone attempting to pass through it. Stones, if large enough, may not only obstruct the cystic duct completely, but also the common and hepatic duct more or less entirely, and when such partial obstruction is accompanied by an infectious cholangitis the picture of acute common duct obstruction may be simulated.

The passage of such a stone into the common duct, and especially when propelled by an infection, gives rise to the typical picture of acute gall-stone colic with jaundice. The inflammatory swelling of the mucous membrane soon effects the lodgement of the stone, and the jaundice becomes intense, as in 12 hours after the commencement of the attack it may have reached its maximum intensity. If the stone reaches the duodenum the symptoms abate and the jaundice subsides.

In some cases icterus does not appear for at least 24 hours after the initial onset of colic and this is particularly true when the stone is small enough to pass down the common duct as far as its curve beneath the head of the pan-

creas. As the latter organ is enlarged in at least one-quarter of the cases the lumen of the duct will be encroached upon and the stone retained at this point. Jaundice then deepens as soon as the stasis of bile is complete. The gall-bladder is not necessarily distended in the acute form of obstruction.

In chronic obstruction of the common duct by a stone, jaundice may be entirely absent, and is constantly present in only extremely rare cases.

Had surgery taught nothing else of the pathology of cholelithiasis than this one fact, we would still be her debtor; it must always be borne in mind that a stone may remain in the common duct for a long time without ever causing jaundice. In many other cases the icterus is of but slight degree and requires careful observation to detect it. That such is the case is due to the well-known "ball-valve" action of the stone in the duct, whereby the duct behind the obstructing calculus dilates and "floats" the stone before sufficient biliary stasis has occurred to cause discoloration of the skin or conjunctiva.

In other instances this ball-valve action forces the stone firmly onward a trifle, sufficient bile collects to cause the appearance of icterus, the stone again floats in the dilated duct and jaundice disappears until the next fixation of the calculus occurs. In such cases the stools may be found to alternate from a dark green to a dull gray, and biluria may occur periodically.

Each increase of icterus is accompanied, as a rule, by an intermittent type of fever which declines with the fading of the icterus. Should the jaundice become pronounced in these typical cases of chronic stone obstruction with a more constant febrile state, it will indicate that an infectious cholangitis has probably occurred.

As a result of acute infections of the biliary tracts, or of gall-stones, certain complications may occur, each of which can give rise to more or less pronounced icterus. I refer to adhesions or strictures of the common duct.

It is also interesting to note that a fistula may occur behind a stone completely blocking the common duct and preventing the occurrence of jaundice. I have observed such a case recently, the history of which is as follows:

T., aged 69, was born in Germany. His family history was negative. He had had malaria in early adult-life and used alcohol moderately. He has had dyspeptic attacks for years.

A year and a half ago he was attacked by colicy pains in the epigastric and right hypochondriac regions. The pain was relieved by opium. The pain was referred to the shoulder. There was no jaundice until three weeks ago when the scleræ became yellow, the bowels were constipated and one week before admission the stools were clay colored. He has lost 40 pounds in weight. The skin itches very much.

At operation, after the usual incision, the gall-bladder area was found filled with adhesions. In order to expose the right free border of the gastrohepatic omentum so as to be enabled to palpate the common duct, separation of the gall-bladder and duodenum was necessary, and it was found that nature had performed a cholecystoduodenostomy. The dissection was carried to the extent of freeing the border of the gastrohepatic omentum, when palpation revealed the presence of a stone occluding the common duct. The portion of the duodenum containing the opening was completely freed of adhesions and the opening, which readily admitted the points of the middle and index finger, closed. The common duct was then opened, the stone extracted and drainage introduced into the proximal end of the duct. The gall-bladder was then excised close to the junction of the cystic with the common duct. His recovery was uneventful. Bacteriologic examination of the bile from the gall-bladder proved it to be sterile.

Primary growths of the gall-bladder and bile ducts are rather rare, and in the event of the former will not cause jaundice until the growth has involved the common duct by extension or has implicated the portal glands, in which event icterus slowly but permanently increases.

A catarrhal process is frequently concomitant in all forms of carcinoma and may cause jaundice. This gives the explanation of the temporary relief frequently obtained in cancer cases by various methods of treatment.

If we again recall the anatomic relations of the common duct, we find that it passes between the layers of the gastrohepatic or lesser omentum, behind the first part of the duodenum or the pyloric extremity of the stomach, and thence along the left side of the second portion of the duodenum and behind the head of the pancreas. It then turns to the right, descending between the second portion of the duodenum and the head of the pancreas. It is then joined by the duct of the pancreas, the duct of Wirsung, and together they dilate to form the ampulla of Vater. This common duct then pierces the wall of the left side of the second portion of the duodenum, running obliquely through the muscular layer for a distance of three-quarters of an inch and empties into the duodenum by an opening barely admitting a probe.

We can easily understand, therefore, that a gastroduodenitis, sufficient to cause a catarrhal swelling and obstruction of the common duct, will also block up the pancreatic duct with retention of its secretion. The effect of the retained pancreatic juice is such as to frequently cause an inflammatory condition of the pancreas with infiltration and induration of its parenchyma. As I have before remarked, in nearly one-fourth of the cases of gall-stones some degree of enlargement of the head of the pancreas is observed.

In certain other cases the duct of the pancreas may be unobstructed, gall-stones may be absent, the chronic inflammation which occurs being due to the infection of the gland from an acute lesion of the duodenum. When the induration in the head of the pancreas is sufficient to obstruct the common duct, jaundice increases in intensity and becomes persistent.

Carcinoma of the head of the pancreas, whether primary or metastatic in origin, always produces, sooner or later, a deep, increasing and persistent jaundice. These two conditions, chronic inflammation and carcinoma, are frequently confused during their early stages because of the intense degree of jaundice and the enlargement of the gall-bladder

observed in both. You of course recall in this connection Courveisier's law, *viz:* that in cases of intense jaundice, a normal or shrunken gall-bladder denotes a stone obstructing the common duct, while a dilated and enlarged gall-bladder is due to malignant disease.

Carcinoma of the stomach may cause jaundice in one of several ways. The growth itself may encroach upon the lumen of the common duct as it winds behind the second portion of the duodenum, particularly when adhesions hold the duct fast and prevent it from being pushed aside. I have always observed such adhesions in large carcinoma of the pylorus.

The distribution of several of the portal glands along the course of the common duct may, by their enlargement, simulate gall-stone obstruction and cause jaundice. I have observed this a number of times and have opened up the duodenum in one case expecting to remove a stone at the duodenal end of the common duct, which turned out to be a large gland with a greatly enlarged head of the pancreas as the cause of the jaundice.

In the postmortem-room of the German Hospital recently, a typhoid fever patient came to autopsy who had become jaundiced a few days before death from a violent typhoid sepsis. The gall-bladder was enlarged and filled with clear bile; there were no stones. A gland, situate at the angle formed by the junction of the cystic with the common hepatic duct, was enlarged to the size of a hazel-nut and compressing the common duct.

This brief summary of the more important conditions causing obstructive jaundice is placed before you with the intention of emphasizing several points:

First and foremost, that jaundice is absent in the majority of cases of gall-stone disease.

Secondly, the jaundice following acute gastrointestinal symptoms means a catarrhal condition of the ducts, and may be followed by suppurative cholangitis with its deep jaundice and well-marked symptoms.

Thirdly, that jaundice, following chronic gastrointestinal symptoms, is usually due to chronic pancreatitis with induration and enlargement of the head of the pancreas, and with or without gall-stones, and after excluding malignancy.

Fourthly, that acute obstruction of the common duct by a stone furnishes characteristic symptoms easily diagnosed; that chronic impaction is followed by the intermittent type of jaundice without enlargement of the gall-bladder, or else by no jaundice whatever. Should the icterus become intense, the fever, sweating and chills of suppurative cholangitis will denote infection.

When a patient dies in a condition of intense jaundice, we frequently use the expression "cholemia." At the present day I think that the greater number of such patients die from an infection and not from the retention of bile *per se.* Not that cholemia never exists, but rather that an increasing intelligent conception by internists of the results in gall-bladder surgery brings the case earlier to the surgeon.

By cholemia is meant the train of symptoms which usually begins suddenly and terminates fatally in a few days. Jaundice, great prostration and delirium or coma are the most prominent symptoms.

The obstruction of the bile flow, the dammed-up secretion, mechanically compresses the liver cells, while the bile itself exerts a deleterious chemical injury. The cells are finally attacked by fatty degeneration or necrosis and with the overgrowth of connective tissue, interstitial hepatitis is produced.

The bile itself, the products of the diseased liver-cells and the infection by microorganisms produce together an autointoxication, the exact effect of which is difficult to comprehend.

We know clinically of various gastrointestinal disturbances, such as anorexia, and constipation, of nervous influences, such as various disturbances of sight, like the pheno-

mena of yellow vision. Pruritis is a frequent and annoying symptom. The pulse-rate is very often slowed and the volume is small. This has been variously ascribed to a paralysis of the intracardiac ganglia, vagus irritation, or disease of the heart muscle.

The excretion of bile pigment by the kidneys, if long continued, must result in disease of their epithelium. The granular casts which are nearly always observed in cases of jaundice are stained heavily by bile. The epithelium present is frequently renal in origin, and even in fresh urine shows evidence of necrosis and granular degeneration. The persistence of icterus is manifested by necrotic changes in the epithelium of the tubules of the kidney and their subsequent occlusion.

It should be remembered that in the early stages of jaundice, with a slightly yellow tinge to the skin and scleræ and with bile pigment present in the serum of a blister, the urine may give no reaction to bilirubin, merely containing a slightly larger amount of urobilin than normal. In the more advanced stages with marked jaundice, the absence of the bile pigment in the urine would indicate the relief of the obstruction, and the stools should be watched for a return of color.

Finally, a certain predisposition toward hemorrhage exists, and epistaxis, hematemesis or intestinal hemorrhage may occur. This tendency toward bleeding will be referred to again.

The system may become accustomed in time to the retention of bile without the production of any acute organic symptoms. I have observed several cases in which the icterus was pronounced, and yet for six months the patient lived without any untoward result other than a gradually progressing weakness and emaciation. This is frequently seen in cases of carcinoma, in which the added jaundice does not appear to materially hasten the inevitable fatal ending.

There is no direct treatment of course for the icterus itself. In inoperable cases we can only relieve the annoying

itching by various powders or lotions. In acute intoxication or cholemia, purgation and the promotion of diuresis and diaphoresis are the only remedies available.

In operative conditions, calcium chlorid, in 30-grain doses three times a day, seems to have some action in preventing oozing after operation, by assisting coagulation of the blood.

This bleeding after operation is most often met with in jaundice due to chronic pancreatitis and carcinoma of the head of the pancreas, and has lost several patients to the writer after an otherwise apparently successful operation.

After operation, calcium chlorid may be administered by the rectum, 30 to 60 grains every four hours being given with full doses of opium.

In conclusion I would urge upon you to obtain a complete description of the previous history and early symptoms of your icterus cases, to form a diagnosis from such history as rapidly as possible and to ask for surgical consultation before the damage to the liver-cells is great, before the infection has become diffused, and before the jaundice has weakened the resistance of your patient to the dangers of an operation.

The evil effect of delayed operation in gall-stone cases does not rest with the effects of prolonged jaundice.

All inflammatory colics of the gall-bladder are accompanied by extensive adhesions from pericholecystitis which affect the omentum, colon, duodenum, pylorus and pancreas. Everything in the region of the biliary tracts becomes tied up into an unrecognizable and tangled mass, the operation is difficult and prolonged, and with the destruction of the anatomic landmarks so essential to surgical success, the welfare of the patient is placed in grave peril.

President's Address

BY W. C. CHAPMAN, M. D., TOLEDO

We have come this year to the fifty-eighth annual meeting of our Association, the first after the reorganization. So radical a change in methods of legislation and scientific procedure must seem strange, and perhaps distasteful to many, who, by long acquaintance with the old, have grown to believe that no improvements could be inaugurated by which the medical profession could be induced to take an advanced stand and so become more powerful for good in our great commonwealth.

It had become an apparent, oft-discussed fact that there must be strong reason why, with seven thousand or more doctors eligible to membership, there should be less than one thousand names upon the roll of the Association, rarely half of that number attending the annual meetings, hence a change to overturn well-established regulations in any body of associated persons requires careful and long-continued investigation. The danger is that for want of such investigation prejudice may prevent the acceptance of not fully understood procedures. The adoption of the new order of things at Toledo was, in my opinion, a step forward. Time may, as it likely will, demonstrate necessity for amendment, but the whole will stand an everlasting monument to the committee of our parent society, the American Medical Association, which, after great labor, evolved a plan whereby all physicians of our land will eventually come together a harmonious whole. With considerable experience gained from personal observation, or learned from the councilors, I trust you will bear with me in my endeavor to show the difficulties encountered in pursuance of the work of reorganization, with the hope that I may assist in overcoming them. The purpose of this Association, as shown by Article II of our Constitution, "Shall be to federate and bring into one compact organization the entire medical profession of the

State of Ohio, and to unite with similar associations in other States to form the American Medical Association, with a view to the extension of medical knowledge, and to the advancement of medical science; to the elevation of the standard of medical education and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians and to the guarding and fostering of their material interest; and to the enlightenment and direction of public opinion in regard to the great problems of State medicine; so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease and in prolonging and adding comfort to life."

It does not seem possible that any one would oppose or indifferently consider such plain and persuasive statements of possibilities. Yet such is the case, evidenced by the discouraging attempts made by your councilors to organize local societies. In this age of organization it is necessary to combine all elements of strength that the whole be strengthened. No one can afford to hold himself aloof from his fellows. Interchange of thought and experience broadens and cultivates. It has been frequently urged that membership in medical societies profits nothing. What recompense is there for time and money expended in society work? These questions have been asked over and over again. As our medical societies have for the most part been constituted, they were rightfully asked. In view of the immense possibilities in the federated organization of the medical profession, the handful of doctors composing the societies have had little to encourage them in their endeavors to elevate and strengthen the entire profession, thereby benefiting themselves as well as the people.

It was with the desire to bring about new and better organization that a few enthusiastic and determined society workers, after many discouragements, were finally able to present to the American Medical Association a plan which was adopted, and sent to the States, that they might modify

their organic laws so as to conform to its requirements, and thus become auxiliary to the parent body. Eighteen State societies have already taken this step, and it is hoped that the rest will soon be added to the list.

Many individuals object to the new order of things, or, in fact, to anything which has for its object the bringing together of all, thus forming a compact whole. Without referring to the objections in detail, I will briefly present to you some of the advantages to be gained by closer companionship, thus hoping to overcome antagonism and prejudice.

It is a deplorable fact that at this time last year about half the counties had no medical societies. The doctors were scattered as "sheep without a shepherd." There was no way whereby any medical question, however important, could be brought to the attention of a body of the profession in many localities. The federation and compact organization of the entire medical profession would remedy this, and is made possible by several wise provisions of the new constitution not yet well understood. The foundation of all government is in the individual. Exactly so is the wise provision for the formation of the American Medical and State Association vested in the membership of the county society. The county society is the portal through which membership in either of the others can be gained. As such it judges of the qualifications of those who desire recognition as physicians. A favorable vote of admission at once makes such person a member of the State Association, with privilege, not compulsory, of uniting with the American Medical Association without further credentials. The result of this wise provision will be that the county society will become a power for good in every community. To remain outside the fold will demonstrate either incompetency or a desire to keep aloof from brother practicians. With nothing to add to, he refuses to take from the wealth of knowledge brought to the society meeting of his locality. I cannot understand such men. They are willing to stand back and not offer to assist in

attempts made by their brothers for a betterment of the profession; they are willing to receive the "gifts the gods give," whilst the active society workers must "bear the heat and the burden of the day." Efforts made to elevate the standard of medical education, or to procure the enactment and enforcement of just medical laws, must be strenuous and persistent if the desired result is to be obtained. For this reason, among so many others, we as an Association want your help; as a State organization an unbroken front must be presented, pushing forward with steady tread to a decisive victory. Men do not know each other until they have often come in contact; to know your brethren there must be friendly intercourse. The interchange of experience, the story of victory or defeat, will ameliorate the trials and troubles met daily. Touch elbows in drill, then when the battle comes you will have faith in your comrades. There never was man so skilled in his profession who did not some day need a friend to stand with him. Go to your medical society and choose the one whose worth you have learned from your meetings with him there. The promotion of friendly intercourse and the guarding of material interest urge to the frequent coming together of neighboring physicians.

Above and beyond all that has been urged in the preceding, medical societies should undertake "the enlightenment and direction of public opinion in regard to the great problem of State medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life."

There never was a time when the profession of medicine stood higher in the estimation of the people than it does today. I say this candidly, fully believing it to be true. Onslaughts are made by isms, cults and pathies, but today to whom does this same public turn in troublous time for enlightenment and relief? Is it not to the scientific medical society man? Whom do the State boards of health depend

upon for assistance but the known competent doctor? Great questions are now before us to be settled in the near future, questions which require the united experience of all. The people now expect much, and if we would embrace the opportunity and perform our duty as we should we must come up to the work as one man, through knowledge gained by organized effort.

There are many diseases known to be preventable which demand investigation by united effort. I desire to call attention to several of these in the concluding portion of this address. I do this for the reason that the people are lamentably ignorant of all questions pertaining thereto, and it is the duty of the profession to enlighten them as to causation and prevention. To do this wisely, frequent discussions are necessary in all our societies. Without such information it is difficult to enforce sanitary or other preventive procedures, especially if the expenditure of large amounts of money becomes necessary. So, too, physicians of little experience in special forms of disease should learn from others who presumably know from observation of many cases the disease they are called upon to treat. If this knowledge could be gained through discussion in medical societies much good would follow. All conflict upon the diagnosis of smallpox would in such event be overcome, and the present scourge of that dread disease would have been ended long ago. Every one knows that this disease is highly contagious and can be avoided only by isolation and strict quarantine of the person affected with it, and still for several years past our State, as well as other parts of our country, have been afflicted with it. It is a disgrace that it has been allowed to remain so long with us. If a united profession had been well informed as to the clinical aspects of the disease, and skilled in the employment of prophylactic measures, there would be little of the scourge remaining. Smallpox today is present in more than one-half of the counties of the State, making its appearance in unexpected localities and surprising the public and the doctors. Many times the ob-

server does not properly diagnosticate the disease, no quarantine is thought of, and other preventive measures are not undertaken. The medical profession in Ohio, as a whole, and I presume elsewhere, at the time of its first appearance was entirely ignorant of the disease clinically, many men never having seen a case in practice, as for a generation it had rarely made its appearance unless in isolated portions of the country. Vaccination as a necessary operation had been forgotten or ignored. I have met physicians who confess they had never vaccinated any one in their community. When smallpox comes into it what a field presents itself for its ravages! With ignorance as to diagnosis there is no wonder that unseemly discussions have prevented prompt attention to the establishment of quarantine. If on the first outbreak of smallpox, boards of health had been able to communicate with local medical societies, and instruct as to the nature of the disease, and rules to be followed in combating its spread, great suffering, loss of life and destruction of property might have been prevented. The members of the medical society are the ones to enforce sanitary regulations, and to do so effectively all must be of one mind as near as possible, so that the people will permit what seems to them unreasonable hardship. Varied expression of opinions from the doctors always tend to weaken the public faith in them. To be a power in the community physicians must reason often together and arrive at conclusions that to their patients must appear unanimous.

It has been demonstrated that tuberculosis is a contagious, preventable and curable disease, and yet physicians do not formulate plans by which such knowledge may be forcefully presented to the people. There is a demand for such knowledge which must come from well-digested facts as shown, not by the text-books alone, but by the experience of active workers, who can bring fresh from their fields of observation such conclusive proofs as to be incontrovertible when debated in the medical society. Having agreed that isolation, diet and fresh air are necessary for recovery

from the scourge, as a body the association of medical men can demand that the State furnish hospitals for the treatment of the disease, and then the money will be forthcoming and valuable lives saved.

Sanitary science has been making wondrous strides during the past ten years. Sewerage and care for water supplies have received much attention, and still we have typhoid fever in abundance, proven to be caused, for the most part, by impure drinking water. Science has shown to a great degree all pathogenic germs can be destroyed by sand filtration, and still municipal authorities refuse to expend necessary money for their introduction. Public sentiment must be aroused by the united efforts of medical men working together as local societies. No government, either municipal or State, can for long resist the demands of the public educated by the doctors.

A united profession should be able to use its powerful influence to bring about reciprocity between the examining boards of all States. There is no just reason why one qualified to practice in one State should be prevented from doing so in another without a second examination. Qualification for membership in the American Medical Association should be sufficient to permit of reciprocity in practice. This Association should not be satisfied until it sees such efforts successful. Now is the opportune time to offer to assist that organization formed in Chicago a month or so ago, composed of representatives of the examining boards of several States, having for its object the establishment of reciprocal relations between the medical examining and licensing boards of the United States, the basis for such reciprocity being (*a*) the filing of certificates of good moral and professional character; (*b*) a certificate that an examination had been made by the proper board of any State on which an average grade of 75% was awarded, the holder therefore having been at the time of the examination the legal possessor of a diploma from a medical college in good standing in the State where reciprocal registration is sought, may be accepted in lieu of examination as evidence of qualification; (*c*) that a

certificate of registration or license issued by the proper board of any State may be accepted as evidence of qualification for reciprocal registration in any other State. Provided, that the holder thereof was at the time of such registration the legal possessor of a diploma issued by a medical college in good standing in the State in which reciprocal registration is sought, and that the date thereof was prior to the legal requirement of the examination test in such State.

I quote thus at length a portion of the rules proposed governing medical reciprocity, trusting that the good sense of our State Society will indorse them, not by vote, but by influencing the legislator to support the attempts made by the new organization. I am happy to say the examining board of Ohio was represented at that meeting.

Finally, gentlemen, I desire to present to you my conviction that in order to assist the members of our Association to gain greatest good from fellowship, there must be a medium of intercommunication whereby the proceedings of the county societies may be recorded and circulated, where cases of interest may be published, and where questions can be answered. If papers read at this meeting with discussions thereon could be given in print in the near future, there will be some benefit to be derived; to wait a year for our proceedings to appear renders them almost valueless. I believe the time has come that we should change our present method. As the American Medical Association and the associations of several States have found it profitable to support their journals, I recommend that we do likewise. With the enlarged membership expected by the reorganization of our Association, it seems possible to me to conduct such an enterprise. As an experiment it might be well to select some established medical journal of the State, and by assisting in its publication make it the organ of our Association. Whether such a movement would be wise or not I leave to the House of Delegates to decide.

Medical Organization

BY BROOKS F. BEEBE, M. D., CINCINNATI

Chairman of the Council, Ohio State Medical Association

Not a physician's name in the Hall of Fame! Only a limited recognition of their worth by the public at large or even among ourselves! Intelligent, law-abiding, unselfish as they are, conscientious and attentive to their duties, progressive in their methods and science, altruistic to a degree not equaled by others, still medical men, with few exceptions—in America, at least—do not occupy that place in the world's affairs or in public esteem that should be theirs. Where lies the fault? In my humble judgment, it is chiefly in themselves. Of a possible 120,000 physicians in the United States, only 30,000 belong to any medical society. There are three times as many out as there are in! Three times as many without the happy advantages and influences as are receiving them! May this fact not explain some unpleasant matters that trouble our profession.

Pray, why is it that physicians are so apathetic, indifferent, ignorant of the practical value of membership in medical societies, which fact undoubtedly is responsible for most of their unfortunate conditions? While being fully conscious that "knowledge is power," we sit down comparatively contented, refusing to exert ourselves in the way that demands and secures recognition of our rights, of our worth and of our power. The great question of the day in medical circles is, How may all this be changed?—for changed it must be, and changed it is becoming, I am happy to inform you, in our State of Ohio, and in most other sections of the country.

When one contemplates, even for a moment, this fact, *viz.*, that the 80,000,000 of people of the United States (barring those misguided by superstition, ignorance and selfish motives), I say when one appreciates to what extent hese 80,000,000 of people are, or may be, directly influ-

enced by the family physicians, it requires no strength of imagination to see that vast good may be accomplished for the people as well as ourselves by getting together and collectively hustling for the right. We are sufficiently intelligent to know what is needed, and we are sufficiently powerful, *when united,* to accomplish any desirable object. Unite the influence of 100,000 physicians so that they may not only have their rights, have their just dues (not more is asked), and they will see that the people in general have that protection and care which this profession alone can give.

I have said that as a class there are no more intelligent, unselfish, honorable, law-abiding, altruistic persons on God's green earth than practicians of medicine. Our very lifework makes us so.

We are now first introducing a plan—initiated one year ago in Ohio—by which this vast body of influential citizens *are* getting together, formulating ideas and carrying into successful operation a work that will redound not only to the good of every member of the profession, but to every person of every community. A new era in medicine is unquestionably ours. A new history is being written for us. Truly, a medical renaissance, like a great tidal wave, is sweeping the country from ocean to ocean. Many an old landmark is being removed from its moorings, and in their places are being erected "Temples of Concord," in which will be found harmony, good fellowship, elevating influences, advanced learning, which will result in greater skill for relieving distress, preventing disease, and procuring increased happiness to the world.

While we are not looking for the millenium, it cannot be denied that the real in medicine is, as yet, not the ideal. Nor, again, do we deny that the real may not be made to approach a little more closely the ideal.

At the last meeting of our Ohio State Medical Association a new Constitution and By-Laws was unanimously adopted. *Unanimity for a unity.* Among other things that

were done was the election of a Council, composed of 10 members, selected from different parts of the State, whose duty it is to go around, organizing and reorganizing medical societies in the different counties and looking after the interests of the profession in every possible way.

We have 88 counties in Ohio, with about 9,000 physicians, 7,000 of whom are denominated regular, and about 4,000,000 of people, all told. Three-fourths of the counties now have county medical societies in successful operation, and these counties contain nine-tenths of the entire population of the State. Before another year has elapsed the remaining counties can easily be organized, and then we shall see what combined influence is capable of doing.

In organizing this mighty power, it has been wisely determined to centralize it in the House of Delegates, which, as you know, is a representative body, made up of the chosen members from every county society, and these, by referendum, are under the control of the Association.

It has long since become a maxim that in union there is strength; that individual efforts avail but little in any great movement; therefore, it is only necessary to state the proposition in order that you may thoroughly appreciate the great importance of a united and harmonious effort.

But how are we to accomplish this union of strength, this union of greatest influence, this union for greatest good? The plan that has been adopted constitutes each county society a unit, with its proportionate representation in the State Association, and being a member of a county society, every physician is a member not only of the State Association, but of the National as well.

By a little effort in each county it has been found quite feasible to have every reputable physician of that county become a member of his home society. Such, in fact, is the case in some of the counties. You should see the happy change of the social countenance in these county societies visited by your Councilors! Really, a half-famished condition seems to have been theirs, who, for years, have not had

the beneficial influences of a good medical society. A more kindly feeling for a brother physician; a deeper interest in professional matters; a greater determination that the ignorant and inexperienced public shall not longer suffer at the hands of the charlatan, the fanatic and the politician; a more intense thirst for medical knowledge; a greater interest in legal enactments for the prevention of disease and the killing of quacks—these are a few of the changes that are already very apparent from the work of your Council.

The benefits and possibilities of this work, thoroughly and effectively done, are beyond my power to tell. They are too many for my feeble pen to portray. Suffice it to say that in a general way we have been accustomed to sum up this matter in about this manner. A physician's life-work may be viewed from three aspects: First, the scientific or purely professional; second, the social or companionable mingling together; and third, the business side, which looks after the material gain that is so necessary and proper. When these three qualifications, *viz.*, the scientific, social, and business, are properly combined in a physician, we have what may be called an ideal medical man. How may we most easily, certainly and satisfactorily secure, even approximately, this desirable state?

Selfishness is one of the natural instincts of all animal life; indeed, it may be said to be one of the first laws of our existence. But it will be observed that the higher in the scale of life we go, the less selfish should and do we become. The necessity of self-preservation by extreme measures no longer exists. This is an age of enlightenment, and enlightened selfishness says not only to live, but to let live and help to live. It is certainly true that the average of physicians come more nearly to being the true exponents of enlightened selfishness than do any other class of people. But are we not able to go further and accomplish still more, and thus benefit not only ourselves, but humanity even to a greater degree? We can do so by thorough organization, and only by thorough organization.

Now, in closing, permit me to say that, while the work of your Council has been comparatively easy thus far, and great interest in the plan is being evinced by those who are thoroughly informed as to what we are endeavoring to accomplish, there yet remains a still greater duty, which can only be done with your assistance. We, as Councilors, are going to be able to set the machine up and put it in motion, but your help is absolutely necessary to keep it in running order. If you will lend a willing hand, if you will render your quota of assistance, which will not be great or burdensome for any single individual, you will not only be helping to accomplish the grandest thing of your lives, but helping to create a force which no power in the State of Ohio can withstand.

"Lay on, McDuff, and d—d be he
Who first doth cry, 'Hold, enough!' "

CHAPTER II—MEDICINE

The Septic Infections

BY GEORGE E. MALSBARY, M. D., CINCINNATI

Synonyms: Sepsis, septicemia, sapremia, pyemia, septicopyemia, the coccus infections.

Definition. Sepsis is understood by the laity to refer to "a poisoning of the system by the introduction of putrescent material into the blood." It should not be inferred from this, however, that sepsis is caused by the germs of decomposition. The infections commonly described as sepsis, septicemia, pyemia, or septicopyemia, are pretty generally ascribed to streptococci and staphylococci. Less frequently a septic infection may be due to other microorganisms, notably the pneumococcus, the *bacillus coli communis* and the bacillus of malignant edema.

Septicemia is a septic infection characterized by the presence of the products, toxins, of pyogenic microorganisms in the blood and tissues of the body. In *pyemia* there is an infection of the blood and tissues of the body by pyogenic microoorganisms. From a clinical standpoint, in septicemia the symptoms of blood-poisoning predominate; in pyemia, the symptoms of metastatic abscesses assume greater importance. A combination of septicemia and pyemia constitutes septicopyemia. However, it would be difficult to conceive of a case of pyemia without the symptoms of blood-poisoning, which fact has led many writers to consider all cases of pyemia as septicopyemias. Usually all these conditions are included under the term septicemia when there is general infection of the blood.

Localized septic infections are usually considered among the inflammations under special names, *e. g.,* meningitis, pleuritis, peritonitis, arthritis, metastatic abscess, etc.

ETIOLOGY

BACTERIOLOGY

The microorganisms most frequently found are the *streptococcus pyogenes,* the *staphylococcus pyogenes aureus, albus* and *citreus,* the *micrococcus pyogenes tennuis,* and the pneumococcus. Less frequently cases are caused by bacilli, *bacillus coli communis,* and the bacillus of malignant edema.

Streptococcus pyogenes (Rosenbach). Numerous attempts to subdivide the streptococci must be regarded as failures, inasmuch as transition forms connect the subvarieties. However, the classification proposed by Von Lingelsheim, a pupil of Behring, has some practical import. Von Lingelsheim, as long ago as 1891, divided the streptococci into the *streptococcus brevis* (nonpathogenic), and the *streptococcus longus* (pathogenic). The latter may be subdivided into(I) those that are pathogenic for mice and rabbits; (a) *streptococcus murisepticus,* (b) *streptococcus pyogenes;* and(II) those that are pathogenic for rabbits alone: *streptococcus erysipelatos.* From the standpoint of practice, most interest attaches to the general relation between the length of the chains and the virulence of the streptococci, although it has been shown by Marbaix that such a relation does not always exist. Classifications of the streptococci based upon cultural characteristics are insufficient because of the many transition forms and the great variability of all the properties of the organisms, especially when grown upon various soils, and after passing through various animals in inoculation experiments. Knorr has shown the fallacy of relying upon the specific virulence of the streptococci in the differentiation of species.

From the foregoing, it is not surprising that streptococci may be found in the healthy body, especially in the mouth, nasal cavities, vagina, and even in the *cervix uteri.* That they may be present in these locations, as well as in the urine and blood, even in virulent form, without causing disease, is readily explained by our knowledge of immunity.

As is well known, inflammation and suppuration may

be caused in various parts of the body by streptococci. Among the septic infections that may be caused by the streptococcus are septicemia, puerperal fever, endocarditis, lymphangitis, angina, bronchitis, erysipelas, *impetigo contagiosa,* phlegmons and abscesses,[1] and some cases of cellular pneumonia (Finkler); more rarely, pleuritis, pericarditis, meningitis, enteritis (diarrhea of infancy), and some cases of osteomyelitis, and *elephantiasis nostras* (Sabouraud); also some cases of nephritis, articular rheumatism, myelitis, infantile paralysis, and possibly some cases of Bright's disease.

As a secondary infection, especial importance is attached to the streptococcus in phthisis, scarlet fever and diphtheria.

Streptococci cause similar diseases in animals. However, the fact that a streptococcus is virulent for one of the lower animals does not necessarily prove that it is virulent for man. Outside of the body streptococci are found in the air, soil and water, through contamination of these media from infected cases.

Micrococcus pyogenes (Rosenbach). The forms of the staphylococcus generally recognized are those distinguished by their color as *aureus, citreus* and *albus.* Neumann has shown by cultural experiments that these are but variations of the same organism, and that it is also possible by culture to produce a red staphylococcus. The virulence of the staphylococci does not hold an invariable relation to the color of the culture. Thus the exclusion of oxygen from the cultures increases the virulence and lessens the pigment production. But as a rule the virulence is greatest in the *staphylococcus aureus.*

The staphylococcus is not infrequently found in the healthy body, more especially upon the skin, particularly the scalp, and in the mouth and vagina, less frequently in the cervix, and it has also been found in the milk of apparently

(1) In these cases staphylococci are found more frequently, alone or associated with streptococci.

healthy women. All this does not seem strange in the light of our knowledge of immunity.

Staphylococci cause suppurations and inflammations in various parts of the body. It is of interest to the practician to note that as a rule the staphylococci produce more circumscribed infections than are caused by the streptococci. Thus staphylococci cause acne of the sebaceous glands, sycosis of the hair follicles, hydradenitis of the sweat glands, pemphigus, phlegmon, furuncle, abscess, periostitis, osteomyelitis, and septicopyemia; and also some cases of rheumatism, pleuritis, pericarditis, pneumonia, and hepatitis.

In smallpox, a number of observers have found micrococci which play an important part as a secondary infection.

Outside of the body, staphylococci are found especially in the water and air, and less frequently in the soil, but the organ usually finds more favorable conditions for its growth upon the skin and mucous membranes.

The *staphylococcus epidermidis albus* (Welch) is to be regarded as a variety of the *micrococcus pyogenes*, probably an attenuated form of the *staphylococcus pyogenes albus*. This organism is found deep in the skin, beyond the reach of the usual antiseptics of the surgeon, and is regarded as the common cause of "stitch abscess," and of suppuration along the course of drainage-tubes. However, it rarely interferes with the healing of wounds.

Pneumococcus. The pneumococcus has not been found outside of the body, but it is found in the saliva in health.

The pneumococcus seems to show a special predilection for mucous and serous membranes. It frequently causes pneumonia (both croupous and catarrhal), pleuritis, pericarditis, endocarditis, peritonitis, otitis, meningitis, conjunctivitis, *ulcus serpens corneæ*, more rarely nephritis and perinephritis, metritis, pyosalpinx, adenitis, parotitis, amygdalitis, arthritis, osteomyelitis, periostitis, abscesses, and septicemia.

Bacillus coli communis. The colon bacillus belongs to a group of organisms that is very widely distributed, espec-

ially in water, as may be abundantly testified to by anyone who has done much examining of water for the typhoid bacillus, which these organisms resemble in many respects. It is probable that true colon bacilli are not found outside of the body more often than are typhoid bacilli, but microorganisms closely resembling the colon bacilli are frequently to be found.

The colon bacillus may be considered a normal inhabitant of the intestine.

From the common location of the colon bacillus in the intestine, it is not strange that it should be a frequent cause of diseases of the abdominal organs. The colon bacillus may be the cause of peritonitis, cystitis, urethritis, pyelonephritis, suppurative nephritis, perinephritis, suppurative adenitis, some cases of dysentery, *cholera nostras;* more rarely pneumonia, meningitis, *icterus gravis,* Winckel's disease, *melæna neonatorum,* puerperal fever, panophthalmia, and wound infections. Inoculation experiments upon animals would seem to indicate that the colon bacillus may be a cause of myelitis.

In animals, the colon bacillus may be a cause of septic infections, especially puerperal fever and omphalitis.

Bacillus of malignant edema. This organism is rarely the cause of septic infection in man. It is a not uncommon cause of the most various septic diseases in animals, and is found widely distributed in nature, especially in the soil.

PHANEROGENETIC SEPSIS

Phanerogenetic sepsis, in which the lesion is known, may be conveniently divided into primary and secondary septic infections.

PRIMARY SEPTIC INFECTIONS

Here belong the cases due to *traumatism,* accidental or surgical, which are of especial interest to the surgeon. It should be remembered that a very minute lesion may suffice to permit the entrance of pyogenic microorganisms and the consequent development of sepsis. Only recently the writer was called to see a very severe case of sepsis, in which the

initial lesion was a small burn upon the wrist, that had been infected, perhaps at first no more than a quarter of an inch in diameter. Septic infection may be caused by insects, *e. g.*, bedbugs, roaches and flies.

One of the most prominent forms of primary septic infection is *puerperal fever,* which may well be regarded as a traumatic sepsis. In these cases the pyogenic microorganisms gain entrance to the body more readily because of the large raw surface presented at the time of labor and during the puerperium. Heretofore great emphasis has rightly been laid upon the importance of dirty hands and instruments in the causation of puerperal sepsis. While it may be that cases are still caused in that way through the carelessness of dirty midwives, it is doubtful if many cases are nowadays to be attributed to laxness in this regard by physicians, since the importance of asepsis and antisepsis in obstetrics has become generally recognized. Indeed, since the advent of aseptic midwifery, cases of puerperal sepsis rarely occur in the practice of physicians, but it should not be inferred that puerperal sepsis is always due to some break in aseptic technic. Sometimes the pyogenic microorganisms are already present in a diseased uterus, when the occurrence of labor or an abortion may prove amply sufficient to lower the local resistance to the invasion of the pus-producers with the consequent development of puerperal sepsis.

SECONDARY SEPTIC INFECTIONS

Here belongs the great bulk of the cases of sepsis seen by the physician. At the present time the secondary septic infections are much more common than primary sepsis. We will consider only a few diseases that play an important rôle in the etiology of secondary sepsis.

Tuberculosis. It is a fact well known to the students of tuberculosis, that the tubercle bacillus very frequently opens the way for the invasion by the pus-producers. The picture then becomes one of phthisis. So frequently is the streptococcus the organism of secondary infection in these cases, that Koch was led to call the irregular septic fever

curve of phthisis the "streptococcus curve." Less frequently the secondary infection may be due to the pneumococcus of the staphylococcus. This subject has been referred to by the writer in a paper read before the Academy of Medicine of Cincinnati, May 12, 1902 (*Cincinnati Lancet-Clinic,* August 2-9, 1902). Indeed, it was the frequent observation of secondary septic infection in cases of phthisis that led the writer to take up the study of the septic infections. When we remember the difficulty with which the bacteriologist can keep a culture of the tubercle bacillus pure in the test-tube of the laboratory, it is not surprising that secondary infection so often occurs in the bronchial tubes, where there is continual exposure to infection.

Smallpox. In variola we find an expression of septic infection in the stage of maturation. The secondary fever of smallpox often presents a characteristic septic temperature curve. The direful effects commonly attributed to scratching in this disease are largely due to septic infection, the scratching frequently serving to inoculate the pyogenic microorganisms. Of late years, the very great decrease in the mortality of smallpox may be at least largely attributed to the aseptic and antiseptic treatment of the disease.

Dysentery. The specific causes of dysentery, especially the Shiga bacillus and the *amœba dysenteriæ,* frequently permit septic infection by colon bacilli and other pyogenic microorganisms.

Typhoid fever. The typhoid bacillus opens the way for secondary infection by pus-formers. Septic infection in the course of typhoid fever may be recognized by the septic temperature in the latter part of the course of the disease. The septic infections often play an important part in the relapses of typhoid.

Gonorrhea. A specific urethritis, due to the gonococcus, may later be complicated by secondary septic infection. Many of the cases of so-called "chronic gonorrhea" are really cases of chronic septic urethritis. Many of the "relapses" of gonorrhea are of this nature. In such cases the

urethral discharge contains the ordinary pus-producing microorganisms.

Scarlet fever. Recent observations seem to show that much of the severity of scarlet fever depends upon secondary septic infection. Indeed, it would appear that scarlet fever is usually not a very severe disease in the absence of such secondary infection. It has been proposed to treat scarlet fever by a serum prepared from the coccus most frequently found in these cases, and excellent clinical results have been reported by numerous observers who have tried this method. The writer has used this treatment in scarlet fever and can substantiate with a limited experience the good results that have been claimed. However, sometimes there are very unpleasant effects, especially eruptions and rheumatic pains, apparently due to the serum. It is to be hoped that a serum will be prepared that will eliminate these unpleasant features. Such a hope must not be regarded as forlorn, in view of the fact that the diphtheria serum formerly caused similar results, but has been so perfected that anything unpleasant is no longer expected to follow its use.

Cancer. One of the most unfortunate features of cancer is the sepsis that is almost invariably observed sooner or later in the course of the disease.

CRYPTOGENETIC SEPSIS

Sepsis of concealed origin was formerly called idiopathic sepsis, but cryptogenetic is a better term in that it implies that the origin of the sepsis is undiscovered rather than undiscoverable. Thus we are stimulated to look for the origin of the infection in all cases of sepsis.

AFFECTIONS OF THE DIGESTIVE APPARATUS

Practically every part of the digestive apparatus may suffer septic infection. In the *mouth,* the dentists very properly emphasize the importance of *pyorrhea alveolaris,* which is a localized septic infection. The infections of the *tonsils* are frequently septic. To such an extent is this true that in diphtheria, for instance, the beneficial results obtained by local treatment have been largely attributed

to the relief of the secondary septic involvement in these cases. Interesting in this connection is the observation that the tonsils are frequently inflamed just before an attack of acute rheumatism. It would seem probable that the cause of rheumatism finds entrance through the tonsils. In acute follicular tonsillitis, numerous pyogenic bacteria have been found in the crypts but not invading the tonsil tissue. It has been suggested by Goodale that the symptoms in these cases may be due to the absorption of toxins formed by the bacteria in the crypts as in a test-tube. The streptococcus is commonly found in the pseudomembranous angina of scarlet fever, and also in the cases of pseudodiphtheria. Suppurative tonsillitis, quinsy, is commonly recognized as a localized septic infection. Some cases of retropharyngeal abscess are undoubtedly due to vertebral caries (tuberculosis); in other cases streptococci are found.

Septic infection of the *stomach,* itself, is comparatively rare, but there are probably few physicians who have not seen many cases in which the stomach suffered poisoning from septic involvement higher up in the digestive tract, *e. g.,* a localized septic infection of the alveolar process or of the tonsils. Such toxic gastric catarrhs are far from infrequent.

Many cases of catarrh of the *intestine* are due to septic infection. Notable in this regard is the diarrhea of infancy, which is commonly recognized as a septic diarrhea. Streptococcus enteritis is often complicated by septic invasion of other organs, especially the liver, kidneys, spleen, and heart. Mention here should be made of typhlitis, perityphlitis, paratyphlitis, appendicitis, and periappendicitis. In many of these cases the microorganisms are present and play an important rôle in etiology. As to appendicitis, it is a notorious fact that the *appendix* forms an excellent culture-tube for the growth of the pyogenic microorganisms. In appendicitis, the infectious agent is usually the *bacillus coli communis,* sometimes associated with streptococci or staphylococci. Predisposing causes in appendicitis are: irritation

due to arrest of the contents of the intestine, the continued retention of fecal matter in the cecum, bending or twisting of the appendix, and muscular relaxation of the appendix; excesses in eating, violent exercise soon after eating, and the ingestion of substances of an irritating character. The appendix may be occluded or irritated in various ways, to permit the entrance within its wall of the septic organisms. In the event of perforation, the ensuing peritonitis is almost invariably septic in character.

AFFECTIONS OF THE RESPIRATORY APPARATUS

Septic infections frequently involve the respiratory apparatus. Rhinologists pay due respect to the septic element in diseases of the *nose,* as is attested by their writings and by the numerous antiseptics employed in the treatment of these diseases. The inflammations of the nose and accessory cavities are frequently localized septic infections. The general symptoms of an acute "cold" are generally attributed to a toxemia. The mucous membranes are much more vulnerable to septic infection than the skin. Indeed, the more ready access of pyogenic microorganisms through the glands of the skin may be ascribed to the fact that these glands are lined with epithelium. It has been claimed that infection never occurs through an intact mucous membrane. The requisite lesion may be so small that it is difficult to disprove this theory. Interesting in this connection is the well-known fact that congested mucous membranes are especially easily injured and they are also most prone to suffer septic infection. Nowhere is this more true than in the nose. In *bronchitis,* the septic element is often dominant. In this connection, it should not be forgotten that among the worst cases of *pneumonia* are the septic pneumonias. We have already referred to the frequency of sepsis as a secondary infection in cases of *tuberculosis,* constituting the clinical picture own as *phthisis pulmonalais,* which is a pulmonary sepsis erimposed upon a tuberculosis. The temperature of

phthisis, the so-called hectic fever, is distinctly a septic temperature.

AFFECTIONS OF THE CIRCULATORY APPARATUS

When speaking of the circulatory apparatus we at once think of the *heart.* All parts of the heart may suffer septic infection. The microorganisms of sepsis have been found in the valves in cases of septic endocarditis. The pericardium may be invaded by the organisms of sepsis, presenting the condition described as purulent pericarditis. The heart muscle, itself, may be invaded by the microorganisms; more frequently the heart muscle suffers poisoning by the toxins, as is manifested by the weak and rapid pulse. Thus the septic microorganisms may invade the pericardium, myocardium, or the endocardium.

Endocarditis occurs as a secondary process, in the course of or following some infectious disease, and is due to the invasion of the endocardium by microorganisms. Among the microorganisms that have been found in the endocardium are the *micrococcus pneumoniæ crouposæ, streptococcus pyogenes, staphylococcus pyogenes aureus, bacillus diphtheriæ,* the gonococcus and the tubercle bacillus. In experiments upon animals, the injection of microorganisms into the circulation is not followed by endocarditis unless the heart is first subjected to traumatic or chemical injury. This would seem to explain the rôle played by trauma, exposure to cold, arteriosclerosis, and atheroma. Endocarditis is especially likely to appear in the course of or after rheumatism, pneumonia, influenza, septicemia, including surgical sepsis and puerperal fever; also osteomyelitis, periostitis, erysipelas, furunculosis, dysentery, gonorrhea, and scarlet fever; less frequently smallpox, measles, typhoid fever, syphilis, Bright's disease and malaria. Sometimes even trivial affections (quinsy, mumps) may be accompanied or followed by endocarditis. The endocarditis may be due to invasion by the specific microorganisms of the infectious diseases, or to secondary infection, or to the effect of toxins.

Myocarditis may be acute or chronic, circumscribed or

diffused, parenchymatous involving chiefly the muscular fibers, or interstitial involving chiefly the interstitial tissue.

Circumscribed myocarditis may be caused by embolism in the coronary artery or its branches, or by septicemia. The disease is often associated with ulcerative endocarditis, puerperal fever, malignant pustule, acute articular rheumatism, diphtheria, typhoid fever, and purulent or gangrenous affections of the lungs. Acute diffuse myocarditis, whether parenchymatous or interstitial, is usually caused by the infections, especially septicemia, typhoid fever, diphtheria, pneumonia, and gonorrhea. Chronic myocarditis also may depend upon the infections, especially acute articular rheumatism, malaria, syphilis, gout, diabetes, Bright's disease. Alcohol, tobacco, and lead are prominent etiologic factors in many cases. Probably most cases are ascribed to cold, trauma, or strain. Myocarditis is frequently due to the extension of inflammation from the endocardium or pericardium.

Primary pericarditis may be due to trauma or causes apparently not connected with other disease, such as "taking cold." More important, because much more frequent, are the cases of *secondary pericarditis,* which may be caused by the infections or by extension of inflammation from contiguous organs, due to bacterial invasion or the action of toxins. Pericarditis is most frequently found in acute articular rheumatism, chorea, tuberculosis, pleurisy, endocarditis and myocarditis, pneumonia, influenza, scarlatina, septicemia, smallpox, scorbutus, nephritis, gout, cholera, dysentery, erysipelas, diphtheria, cerebrospinal meningitis, hemophilia, hemorrhagic diathesis, purpura, *morbus maculosus,* leukemia, diabetes, cirrhosis of the liver, carcinoma, sarcoma, and syphilis; typhus, typhoid fever, intermittent fever, relapsing fever, gonorrhea, phlebitis, and osteomalacia. Aneurism is a rare cause.

AFFECTIONS OF THE URINARY APPARATUS

Acute Bright's disease is caused by the excretion of some on though the kidneys. Typical acute inflammation of

the kidneys may be produced by cantharides. Acute Bright's disease is most frequently caused by toxins in the course of or following the infectious diseases, especially scarlet fever, and diphtheria; it is less frequently caused by the toxins of measles, rötheln, smallpox, and pneumonia; and still more rarely by typhoid fever and the other infections. Some cases are ascribed to "cold" and pregnancy.

Chronic parenchymatous nephritis is caused for the most part by the long-continued elimination of a poison, usually a toxin. Some cases result from acute parenchymatous nephritis, especially when due to septicemia, syphilis, or tuberculosis; sometimes when it is due to scarlatina, pregnancy, or "cold." It should be remembered that "colds" are usually infectious.

The septic infections are to be held responsible in a large measure for the inflammations of the *ureters, bladder and urethra.* Indeed, in many of the so-called cases of chronic gonorrhea, no gonococci will be found but only the septic microorganisms. Such a case may have at first been a true gonorrhea, but secondary infection takes place, the gonococci disappear, and thus we have a true case of chronic septic urethritis.

AFFECTIONS OF THE GENITAL APPARATUS

Aside from the venereal diseases, much of the work of two specialties is afforded by the septic affections of the genital apparatus. We have already referred to septic urethritis. Not infrequently this process involves the prostate gland and the lymphatic glands connected with the urethra. In the female, almost every part of the genital apparatus has been shown by our enterprising colaborers, the gynecologists, to be the possible seat of septic infection. It will suffice here to mention vulvitis, vaginitis, endometritis, salpingitis, peritonitis, and puerperal fever.

AFFECTIONS OF THE NERVOUS SYSTEM

Many diseases of the nervous system are attributed to septic infection or to the poisoning by toxins. We may mention, by way of illustration, meningitis and encephalitis,

in which septic infection is often the predominant etiologic factor. The hazy mind of sepsis is familiar to all of us.

IMMUNITY

In order that a septic infection may occur, the immunity or resistance of the body must be overcome. Such resistance is offered to a greater or less extent probably by every cell and fluid of the body, but certain tissues and organs possess peculiar protective properties. Ehrlich's lateral-chain theory of immunity has come to be pretty generally accepted, and although this hypothesis is probably not true in its entirety, it has served well the purpose of a working formula. It should not be inferred that the work of Ehrlich has in any way disproved the important rôle ascribed to the phagocytes by Metschnikoff. Immunity is by no means a simple process. It is known that special resistance to infection is offered by the skin, mucous membranes and serosa, the small-cell infiltration, the lymph-structures, lymph-vessels and lymph-glands, the thymus-gland and bone-marrow; the excretory organs, kidneys, liver and intestine; and by the blood, where resistance is offered by the leukocytes, erythrocytes, and by the blood serum.

The immunity of the body to infection is lessened by fatigue, starvation, exposure to cold, more especially exposure to impure air, bad hygiene, and by toxemia (Bright's disease), and anemia.

SYMPTOMATOLOGY

Often there is the history or evidence of a *preceding infection or traumatism.* We have already referred to the frequency of secondary septic infections, and the etiologic importance of traumatism.

Chills and fever. These are among the most common symptoms of sepsis, and with the sweats form a triad that often first arouses the suspicion of the diagnostician in cases of cryptogenetic sepsis. The chills are subjective sensations ascribed to the poisoning of the nervous system. The rise

of temperature is due to the poisoning of the heat-regulating centers, and with the chills bears a close etiologic relation to the sweats, which are caused by a poisoning of the vasomotor centers. The rise of temperature begins with the chill and continues with slight increase after it to constitute the so-called fever. The chief characteristic of the temperature of sepsis is its irregularity. A further study of the temperature in connection with the etiology of sepsis, especially the bacteriology, may enable us to better classify the temperatures of the septic infections. We have already referred to the "streptococcus curve" so frequently observed in phthisis.

The chills and fever of sepsis are not broken up by the use of quinin or the salicylates, nor are they controled to any extent by the antipyretics.

Pulse. The pulse of sepsis is rapid and weak. The condition of the pulse depends upon the heart, which is weak and dilated, because the muscle of the heart is poisoned.

Nervous symptoms. We have already referred to the poisoning of nerve centers in the production of the chills, fever and sweats. Among the important nervous symptoms are depression, headache, dizziness and vomiting. Insomnia and nervous excitement are common; less frequently there are convulsions or coma. In this connection mention should be made of the peculiar euphoria, observed especially in the *spes phthisica* of tuberculosis and also in some cases of puerperal fever.

The various nervous symptoms are due to poisoning by the toxins, or they occur as grave signs of anatomic lesions, embolic occlusions, softenings, hemorrhages, meningitis, and encephalitis.

Examination of the blood may reveal the microorganism that causes the disease. The recognition of the specific infectious agent makes the diagnosis absolute. Microorganisms may be found in the blood by bacteriologic examination, for which purpose it is necessary to make

cultures, using large quantities of blood. Such examinations will usually prove satisfactory in cases of pyemia, in which there is the formation of metastatic abscesses. They are not usually necessary in such cases for the purpose of diagnosis. On the other hand, we would not expect to find bacteria in the blood in a case of simple toxemia.

Leukocytosis. There is usually an increase of the white blood-corpuscles especially of the polymorphonuclear type.

Anemia. The diminution of the erythrocytes, or red blood-cells, is usually marked and corresponds in general to the severity of the disease.

The *blood plaques* are increased.

The joints are painful, swollen and tender. We are at once impressed with the analogy to rheumatism. Indeed, many rheumatisms are septic in character. Acute articular rheumatism has been shown to be due to microorganisms closely allied to if not identical with the organisms of sepsis, so that the disease might well be considered a modified septic infection.

The spleen. The spleen is tender and enlarged, but not to the extent observed in malaria. There may be infarctions.

The skin. Almost all cases show some affection of the skin. Usually there is an eruption. The eruptions of the septic infections show great variability as to form. The most common eruptions are hemorrhagic, especially petechial. Among the common forms of eruption are roseola, urticaria, erythema and herpes. A closer study of the eruptions of the septic infections in connection with the specific causes of these infections may systematize our knowledge of this subject.

In this connection, we must not fail to mention *jaundice,* which is frequently found, especially in the grave septic infections.

Metastatic affections. Metastases may occur in any art of the body. They are found most frequently in those

organs supplied with endarteries. Thus, metastases occur with especial frequency in the skin, eyes, kidneys and brain.

DIAGNOSIS

The diagnosis rests upon the infection, the chills and fever, the sweating, the frequency of the pulse out of proportion to the temperature, and the metastases, for the recognition of a general septic infection. In the localized septic infections, much depends upon the part involved, but in such cases general symptoms are often present, being caused by toxemia. Of most importance is the differential diagnosis.

DIFFERENTIAL DIAGNOSIS

Typhoid fever. There are probably few practicians who have not at times been puzzled for a while in the differentiation between a septic infection and typhoid fever. Only last week a patient at the clinic presented so many of the symptoms of typhoid fever that I asked one of the students to keep him under observation until the next clinic day. There were present an eruption of rose-colored spots, fever, diarrhea, slight enlargement of the spleen, bronchitis, and some cloudiness of the mind. Just before the patient left, we observed that he did not use one of his fingers freely, and an examination revealed the cause of the whole condition in a localized septic infection, a felon. He had complained of feeling bad and had tried to conceal the sore finger, fearing that we would cut it. It should not be inferred, however, that there is any difficulty in differential diagnosis between the septic infections and typhoid fever, when the patient is under observation for any length of time. Typhoid fever shows a characteristic temperature curve, different from the see-saw irregular "streptococcus curve." However, it should be remembered that the temperature of typhoid fever after the second week shows the irregular character common to the septic infections, due to a secondary septic infection of the typhoid ulcerations. The so-called typhoid state is present much earlier in typhoid fever than in septicemia. The presence of the diazo reaction in the urine

and the positive reaction of the blood to the blood-test for typhoid fever would make the diagnosis of typhoid fever almost, if not quite, absolute. An examination of the blood may reveal the microorganisms causing septicemia; but such microorganisms may be present as a secondary infection in typhoid fever. Retinal hemorrhages, arthritic affections, and mitral lesions speak for septicemia.

Malaria. The demonstration of the *plasmodium malariæ* would make the diagnosis of malaria absolute. The therapeutic test with quinin would control malaria and have little influence over septicemia. The temperature usually shows more marked periodicity in malaria than in septicemia.

Miliary tuberculosis. Sometimes we may find the tubercle bacillus in the secretions or excretions, making the diagnosis of tuberculosis absolute. Often there may be found tuberculosis of the lungs, lymph-glands, spine (caries), or hip-joint (hip-joint disease). Obscure cases may be cleared up by a test-injection of tuberculin, but the recognition of miliary tuberculosis does not necessarily exclude the presence of the septic infections. These often coexist.

Cerebrospinal meningitis. Opisthotonos, hyperesthesia, constipation, and the occurrence of the disease in the colder months, in soldiers and children, would speak for cerebrospinal meningitis rather than septicemia.

Endocarditis. Many cases of endocarditis, especially ulcerative endocarditis, are to be regarded as septic infections. Endocarditis presents the evidence of heart disease in enlargement and bruit.

Uremia. There are more severe headache, twitchings, convulsions and coma in uremia. There are also edema, albuminuria, tube casts, and often hardness of the arteries in uremia.

Joint affections. Rheumatic, post-scarlatina, or gonorrheal joint affections may furnish the history or evidence of umatism, scarlatina, or gonorrhea. These joint affec-

tions may be due to secondary septic infections. The presence of the "streptococcus curve" or of metastatic abscesses would speak for septicemia.

The salicylates owe their value in sepsis to the neutralization of toxins. It is not improbable that their utility in rheumatism may be ascribed to the fact that rheumatism may often be regarded as a toxemia. This would accord with our knowledge of the origin of rheumatism in some cases from diseased crypts of the tonsil, the rheumatism in such cases apparently being due to the absorption of toxins formed by the bacteria in the crypts as in a test-tube. The salicylates are much more efficacious in such toxic forms of rheumatism than they are in sepsis. However, many cases of rheumatism are septic in character, and it is not improbable that acute articular rheumatism is a modified septic infection.

PROGNOSIS

In a general way the gravity of a case may be measured by the height of the fever, the weakness of the heart, the nervous symptoms, and the character of the complications. Much depends upon the location and the accessibility to proper treatment or removal of the local infection. Finally the prognosis is determined largely by the character of the infectious agent. The gravest outlook is afforded by the cases of streptococcus and of mixed infection.

PROPHYLAXIS

The prevention of the septic infections demands cleanliness. The number of cases has been greatly reduced by the general observation of asepsis in surgery and obstetrics. Surgical sepsis and puerperal fever are no longer to be regarded as common diseases. The general use of antiseptics has done much to lessen the ravages of the septic infections. A further advance in prophylaxis may be made by the wider dissemination of the knowledge that severe cases of septic infection may be caused by the entrance of the infectious agent through a minute lesion. The removal of all accumulations of pus assumes importance. Finally,

we should emphasize the importance of preventing as far as possible the secondary septic infections.

TREATMENT

It should go without the saying that as far as possible all depots of infection should be removed.

Serum therapy. Here we will refer only to the use of the antistreptococcus serum. When we reflect upon the fact that not all cases of *sepsis* are caused by the streptococcus, it is not strange that the antistreptococcus serum does not invariably prove of value in the septic infections. Furthermore, it is probable that the antistreptococcus serum protects only against infection by the particular variety of streptococcus from the culture of which the serum has been obtained. Marmorek claims that the antistreptococcus serum will protect against infection by any of the streptococci, but this statement is probably over-zealous. Protection has been secured against two or three varieties of the streptococcus by immunizing against the two or three germs. The streptococcic serums rapidly deteriorate in the vials and soon become worthless, which may explain the failure of the remedy in some cases. Sometimes the antistreptococcic serum seems to produce magic effects, in the septic infections; in other cases the serum seems to have little or no effect. The writer has seen little good effect from the use of antistreptococcic serum in *phthisis,* probably because the sepsis of phthisis is so often a mixed infection. In scarlet fever good results have followed the use of the serum. It has been suggested that *scarlet fever* is normally a mild disease, and that the grave cases depend upon a secondary infection by a definite streptococcus. Whatever the explanation may be, in an instance in which the writer was able to give the serum a comparative trial, the child upon whom the serum was used recovered, while her brother, who appeared not to be so sick, and who was not treated with the serum, died of the disease. It has recently been suggested that the antistreptococcus serum might prove of value in the treatment of *rheumatism,* and some

good results have been reported. At the present time the writer is giving it a trial in this disease. He has under observation at the present time one of the most marked cases of acute articular rheumatism that he has ever had the privilege of seeing. Almost all the joints of the body, including even the sutures of the skull and some of the pelvic joints, have been involved in the disease. In this case he found the urine to contain streptococci in pure culture. The patient showed some improvement under salicylate of sodium. The injection of this microorganism into guinea-pigs did not produce pus. Upon finding streptococci in the urine, the writer prescribed urotropin, but this the patient was unable to take because of gastrointestinal disturbance. Helmitol, the acetic acid formaldehyd preparation, was then used with good results. The patient was able to take the remedy satisfactorily and the streptococci disappeared from the urine while the remedy was exhibited, and the patient showed some improvement. It may be mentioned, in passing, that mesotan, a salicylic acid preparation, was found a very useful local application. The case has been under the observation of the writer for five months. The patient's condition is much improved, but the disease is not cured. Last week the use of the antistreptococcus serum was begun. The results have seemed marvelous, but the time is too short as yet to be able to tell absolutely how much good has been accomplished by the remedy.[1] It is interesting to note that in this case an old *endocarditis* has apparently been benefited by the serum. The writer has observed a similar action of the serum in other cases. It seems plausible that the serum may prove of value in the dreaded cases of ulcerative endocarditis, inasmuch as this is a septic process. In *puerperal sepsis* good results have been reported from the use of the antistreptococcus serum, but the writer has not been able to verify these good results. In such cases he has found it to have little or no apparent effect. But in no case has any

(1) August 11, 1903. This patient has remained free from attacks since the serum was used.

dangerous effects followed the use of the serum. The worst effects he has observed have been some pains, swelling of the glands, and skin eruptions, all of which may occur in cases of sepsis in which the serum has not been used. The picture was the same that we formerly saw frequently after the use of the diphtheria serum. At the present time we do not expect such results from the diphtheria serum.

Specific treatment. Under this heading we will consider the drugs, other than the serums, that seem to have a specific effect in the septic infections.

Often surgery affords the best specific treatment in the removal of an infectious depot. In the treatment of wounds, the actual cautery, thermocautery, or galvanocautery is sometimes useful. Frequently infected wounds may be satisfactorily dressed by the use of an antiseptic lotion, such as a solution of carbolic acid, or better, bichlorid of mercury. Compresses of bichlorid of mercury have come into quite common use. When practicable the infected part may be immersed in a bichlorid solution, which is best used hot. The writer had a patient with an infected hand and arm in which this treatment was tried with temporary improvement. The treatment then ceased to control the case. Hereupon applications were made of formaldehyd in 40% solution, both over the infected sore and over the infected glands and lymphatics. This was followed by a most pleasant drop in the temperature and a general improvement in the patient's condition. Emboldened by the success attendant upon the use of formaldehyd in this and some other cases, the writer recently resorted to similar applications in a case from which he had removed a sloughing tumor and the infected wound presented all the distressing features of numerous stitch-hole abscesses. In this case the wound was first treated with a solution of cocain and then the application of formaldehyd solution was made. The results were most satisfactory. The infected sore was at once converted into a simple formaldehyd burn.

Cases of cryptogenetic sepsis are sometimes cleared up

by the deep urethral injection of a solution of protargol or nitrate of silver, gr. xx to ℥j; or by a curettement of the uterus or the removal of a diseased ovary; or by the relief of a mastoid disease by operation.

The entrance of septic infection through the respiratory tract may be combatted by the use of antiseptics as boric acid, lactic acid, subsulphate of iron, etc.

Intestinal antisepsis may be secured by the use of calomel, salol, betanaphthol, ichthalbin, etc.

In grave cases of septicemia, excellent results may sometimes be secured, and almost always temporary improvement, by venesection and the infusion of normal saline solution.

It is a matter of common observation that alcohol does not readily produce toxic effects in septicemia. It is supposed to increase the number of leukocytes and to neutralize toxins. Large quantities may be given best in the form of whisky or brandy.

Quinin is an old empyric remedy, which reliable men have used with good results. The writer has not seen any benefit from its use in septicemia. It may possibly prove useful in some cases through neutralizing toxins. The beneficial results obtained by the use of the salicylates, and the preparations of iodin, mercury, bromin, and arsenic, may be at least largely attributed to the neutralization of toxins.

Most flattering reports have been made by numerous observers as to the remarkably good results following the use of soluble silver, especially in the form of the unguentum Credé administered by inunction. The writer has used the remedy freely in a number of cases but has been unable to corroborate the reports of its value. It seems to be almost, if not absolutely, inert.

Symptomatic treatment. Fever and pain may sometimes be advantageously modified by the judicious use of antipyretics, such as antipyrin, phenacetin, or kryofin; or, in the presence of great weakness, resort may be had to lacophenin. It is usually better to give alcohol or caffein when using these antipyretics. Fever that becomes danger-

ously high may be better controled by hydrotherapy, best sponging with cold water. Affections of the heart, joints, meninges, pleura, or peritoneum call for the application of the icebag. Obstinate pain and sleeplessness demand the use of opium.

If this paper stimulates us to study our cases more thoroughly and to recognize more frequently the septic infections, the writer will feel that its mission has been largely accomplished. We will then hear less of those cases that formerly were regarded as malarial or miasmatic and that today masquerade under the rather vague cognomen of the rheumatic diathesis, which is used as a cloak to cover so many obscure or superficially observed affections.

DISCUSSION

Dr J. H. J. Upham, Columbus: Dr Malsbary's paper is certainly a very interesting and exhaustive one. A very important deduction may be drawn from it, one that has greatly impressed me in the use of serums in septic conditions, and that is the prime necessity of an absolute diagnosis of the variety of organism present in the case under treatment. I think that the failure to do this explains a great many of the reported cases of failure, for example, in the use of the antistreptococcus serum, the latter being used when other organisms than the streptococcus were present. I would like to ask Dr Malsbary if, in the cases of puerperal sepsis he mentions, in which no benefit was derived from the use of this serum, cultures were made establishing the presence of the streptococcus?

I would like to impress upon the members of the profession the great importance of such measures in instances in which the serum treatment is to be employed. It is usually not difficult to recognize a condition of infection; the clinical symptoms alone, a blood examination showing a leukocytosis, absolute or relative, or possibly, as has been recently suggested, the presence of albumose in the urine, etc., all point readily toward sepsis; only the making of cultures, however, from the blood or discharges will demon-
te the variety of the organism causing the trouble.
e streptococcus is present in a given case, I believe the
treptococcus serum will prove of great benefit, but I

deprecate the looseness in vogue at present in the use of serums as tending to discredit what may prove a very valuable means of treatment.

Dr George E. Malsbary, Cincinnati, closing: The point which the Doctor mentions in reference to the necessity for an accurate diagnosis of the germ present is a very good one. In the cases of puerperal sepsis there was not a pure streptococcus infection, but a mixed infection which would seem to account for the failures in the cases referred to.

The presence of mixed secondary infection probably accounted for the apparent failure of the antistreptococcus serum in the sepsis of phthisis.

The Importance of a Correct Diagnosis in Gastric Disorders

BY C. L. MUELLER, M. D., WAPAKONETA

In intruding upon your attention my chosen subject, I want to express my thanks for the honor that I am permitted to present to this illustrious assembly of thinking men this paper. I do this with a certain timidity, as I know very well that everybody present knows the importance of a correct diagnosis without my telling him.

I intended to lay before this meeting a case of otitis media which came under my observation during the Spanish war, and which was caused by a fly depositing its eggs in the ear of a soldier from which innumerable maggots emanated causing the otitis. As far as I could learn there is only one similarly produced case of rhinitis on record, but as I was unable to secure the necessary literature in order to prepare such a paper, so that it could be intellectually read before a meeting of this Association, I had to abandon this. I choose then the above subject as I have, during my sixteen years of hospital, steamship and general practice, given gastric diseases more attention than any other field and always liked this field best.

People, we all know, judge the physician according to

his success; and, therefore, it is of the greatest importance that we always make or try to make a careful diagnosis before deciding on the treatment. If we are not entirely sure of our diagnosis, we should not tell the patient anything, nor give him any hope or promise of cure. Allow me to mention a little occurrence which demonstrates that the adage "talking is silver, silence is gold" is in no other profession more important than in ours.

Several years ago, we had in the town in which I have been engaged in the healing art for the past 11 years, a physician who had the basest disregard for all scientific achievements in medicine. Once after a consultation he admitted frankly to me that they were not taught much anatomy, physiology or pathology at the college (he was not an allopath, I want to say right here) but were taught how to treat and cure sick people as this was the only important part in medicine. I did not go into a discussion, as I never knew that a house could be built without a foundation, but at the present time everything seems possible. This physician was a master in the art of silence and no patient could extract a word from him concerning his ailment or his prospects of getting well, and as he combined this art with gentlemanlike manners and exquisite politeness, he had a larger practice than all the other doctors combined, and he was the leading physician for several years. Later his success caused him to start out as a heavily advertised traveling specialist and here, as I later heard, his nontalkativeness was his ruin. I mentioned this little episode to illustrate how wise it is not to say much to a patient, except when we are sure.

Coming back to my subject, most of the gastric cases coming to the attention of the general practician are the different forms of acute and chronic gastritis which Ewald divides into the acute stages in simple acute gastritis and sympathic acute gastritis; the chronic stages in chronic glandular gastritis and chronic gastritis with atrophy of gastric mucosa. The symptoms of the acute and chronic gastritis

and their difference are too well known to everybody to be explained here. But the following diseases, gastric carcinoma, gastric ulcer, gastralgia and chronic gastritis present quite frequently similar symptoms which may lead to a wrong diagnosis especially in cases in which the main symptoms are not so plainly developed.

As each of these diseases requires an entirely different treatment, it is of the utmost importance in such cases to make a correct diagnosis, and often it will be necessary to observe patients quite a while in order to ascertain the right opinion before we decide on a definite way of treatment. This is the reason why we should always be very careful and attentive in all gastric disorders which come under our observation.

In cases of acute gastritis in which alarming symptoms prevail, as high fever, severe pain, nausea or the like, the physician is generally careful not to overlook anything; but I mean patients who consult us at our office, making general complaints as occasional or continuous pains, heavy feeling in the epigastric region, irregular movements of the bowels, nervousness, nausea, anorexia and similar symptoms. In such cases we are only too apt to quiet our conscience with the diagnosis of chronic indigestion, to order a diet and to prescribe a digestive remedy of which each doctor has generally one as his individual pet.

In these cases we have to be on our guard, and often lose patients to other physicians because we took it too easy and did not consider the case as carefully as we should have done. The correct diagnosis is possible only after the most complete and careful consideration of all the symptoms and the employment of all the diagnostic resources. No matter how plain a case of this nature looks to us, and how sure we are that it is only a dyspepsia, we should never reach this diagnosis except by the way of excluding the other mentioned diseases, by the differential diagnosis.

First, in such a case we must be on the lookout for a beginning carcinoma, provided the patient is nearly 40 years

or older; we must see if there is any difficulty in deglutition when partaking solid food, if a tumor is palpable, if the epigastric pain is more dull and continuous and not dependent upon taking food and not relieved by vomiting, if there is frequent fetid belching, if there is repugnance to meat. Advanced cases of gastric carcinoma are most easily recognized, but in beginning cases it is often almost impossible to find out. If there is a doubt, the contents of the stomach should be examined to determine whether they contain H.Cl. If they do not, it is probably a case of carcinoma in an early stage.

To obtain the contents of the stomach for examination, the following method seems to be the best: Let the patient throw his head back slightly, open his mouth, push the soft rubber tube to the posterior wall of the pharynx without using your finger for guiding and ask the patient to swallow. The muscles of deglutition will grip the tube and it will pass without difficulty in the upper end of the esophagus and by gently pushing it will easily reach the stomach, the contents of which can then mostly be obtained by abdominal pressure.

In cases in which none of the symptoms are distinctly pronounced, but in which there is only a shadow of a doubt, we must be on our guard in making the prognosis. If we promise the patient relief and health and the case is a beginning carcinoma, the next physician who gets the case, and who is more cautious, will get the credit of having understood the disease at once, having told the patient that he could not help him much.

Cachexia is almost invariably a sign of carcinoma, but a cachectic appearance is seen in later cases of ulcer and cases of gastritis, but in the latter only if complications are present. After having excluded carcinoma we should carefully go over the case again and see if it could be gastric ulcer. Hemorrhages caused by gastric cancer occur almost invariably in the cachectic stage, never when the general appearance of the patient is good; but in ulcers of the stomach we often have severe hemorrhages when the gen-

eral condition of the patient is good. In ulcer, the pain presents itself not as a continuous pain but usually in paroxysms and is often relieved by vomiting.

In palpitation of the epigastric region there can be detected invariably a point where pressure will cause sharp excruciating pain, while the same pressure on a place near this point may not produce any pain. The amount of H. Cl. is mostly increased in the contents of the stomach, and this is sometimes a valuable resource in the differential diagnosis.

If we have excluded the two most serious pathologic conditions, we may direct our attention to gastralgia which can occur at all ages. In this case there is no change in the taste of the mouth and the appetite is irregular; often hot sensations are experienced in the stomach which often change to cold; the pains can make their appearance at any time and in all forms and are frequently relieved by pressure on the stomach. The chemistry of digestion is not altered and epigastric pulsation is present. Vomiting may occur at times and consists sometimes of mucous masses, sometimes of the more or less digested contents of the stomach. Constipation is mostly present, but no fever. The main symptom of gastralgia is always the pain.

If we get a gastric disorder under our observation and feel confident after careful consideration that none of the three above-mentioned diseases are present, we can then with good conscience call the case chronic gastritis.

I do not want to say by this that all cases of chronic gastritis are pleasant for the physician, but that the prognosis is rather favorable. An examination of the contents of the stomach should be made in all these cases if opportune; and we will be able to help the patient in a great number of cases after we have ascertained as to whether the conversion of starch is more impaired, or the dissolution of the proteids. Seventy-five percent of these cases will readily yield to a rational treatment including the mechanical, dietetic and remedial resources that we have at our disposal today; which to outline does not come under the domain of my paper.

Absence of Gastric Juice—Its Significance and Treatment

BY HENRY WALD BETTMANN, M. D., CINCINNATI
Member of the American Gastro-Enterological Society

Laboratory methods of diagnosis are making great strides in all departments of medicine. The general practician is beginning to make his own microscopic and chemical tests. The examination of the blood, sputum and urine is practiced now as a routine procedure by many progressive physicians. The study of the gastric juice is also becoming more frequent. The technic of all these examinations has become common property. It has now become of the highest importance to learn what all of these data, obtained so laboriously, actually signify. It is now understood, for example, that leukocytosis is a symptom, and must be studied with the other symptoms before its significance can be determined. Albuminuria is no longer considered a sure symptom of Bright's disease, but must be studied in its relationship to the other conditions present in the case. The same is true in regard to the gastric juice. *The data obtained by chemical tests are symptoms only and must be interpreted with enlightened clinical insight before their meaning becomes clear.*

The next great advance toward clinical perfection, therefore, will consist of an *increased power to interpret* with reasonable sureness all the data obtained by physical, chemical and microscopic methods.

Every practician who examines the gastric juice often will meet many cases in which the gastric contents give no reaction for free HCl. It was at first supposed that this absence of reaction was always a sign of cancer of the stomach. This view has been considerably modified since. Edinger in 1880 discovered that amyloid degeneration of the gastric mucosa may be characterized by absence of HCl. 'enwick, in 1887, showed that some cases of pernicious ıemia are accompanied by atrophy of the gastric mucosa,

and later demonstrated that the atrophy may occur in cancer of different organs, *e. g.*, the uterus, the breast, the bowel. Absence of HCl. from the stomach has since been demonstrated in some cases of diabetes mellitus, and cirrhosis hepatis; and Riegel has shown that it may follow gastritis of toxic origin. In all of these instances the underlying condition can usually be recognized without great difficulty, and only a careless examination would permit a pernicious anemia, or a cancer in some organ of the body to escape observation.

In daily practice absence of gastric juice is commonly found in one of three conditions: Cancer of the stomach, chronic gastritis, and that peculiar disease called by Einhorn "achylia gastrica." The special purpose of this paper is to call particular attention to this latter condition, which is by no means rare, but which has received by far too little attention by the profession.

Absence of gastric juice or achylia gastrica (to use Einhorn's term) should be carefully differentiated from anachlorhydria or absence of free HCl. The phrases have too often been used interchangeably at the expense of accuracy. We should not, in the strict sense of the word, use the term achylia except in those cases in which not only the HCl. but also the pepsin and labferment are wanting. In cases of true achylia the stomach contents removed one hour after a test-breakfast should give negative reactions for peptone, propeptone, HCl., pepsin and labferment.

In 1892 Einhorn suggested the term achylia gastrica for cases in which the stomach had apparently lost its power of secretion. This term has been somewhat grudgingly adopted, but its use has gradually become more and more general. I believe that the discovery of "achylia gastrica" as a distinct clinical entity, clearly to be differentiated from chronic gastritis and the above-named conditions, is a brilliant clinical achievement. It is true that chronic gastritis may terminate in atrophy of the gastric mucosa, and may then be confused with achylia, but this termination is cer-

tainly uncommon, and the history and etiology will leave little doubt as to the nature of the case.

Achylia gastrica is characterized by a complete suspension of all gastric secretion. There is no HCl., no pepsin, no rennet; the bread crumbs of the test-breakfast undergo no visible change during their hour's stay in the stomach; the gastric contents when removed give no reaction for peptone or propeptone; they may be neutral or faintly alkalin or acid; the total acidity rarely rises above 4 or 6. Mucus is nearly always absent; there is no decomposition of the food, no smell, no fermentation, and no bacteria under the microscope.

This appearance of the gastric contents is so characteristic, and the chemical reactions so uniform, that confusion with other diseased conditions is hardly possible. It is important to know that "achylia gastrica" is a benign affection; that when uncomplicated it does not tend to end fatally; that the patient can usually be restored to comfortable, good health. The symptoms that accompany achylia may be few or many, or absent altogether; they may be localized in the stomach, or the stomach may apparently functionate normally, and the chief disturbance be in the bowels. The nutrition may be markedly or only slightly affected. In nearly all the cases I have seen the weight has been subnormal, and remains subnormal even after the patient's restoration to good health. A typical case is as follows:

L. M., aged 42, a manufacturer, of nervous temperament, was well up to July, 1902. He had never suffered previously from any gastric or intestinal disturbance. In July, 1902, he began to vomit a colorless, tasteless fluid about three hours after each meal. The vomiting was preceded by considerable nausea and malaise, and about 30 to 50 cc. was ejected. There was never any food in the vomited material, which was neutral or slightly acid in reaction. He lost weight and strength rapidly, being reduced from 130 to 115 pounds, and later to 110 pounds. He became nervous and troubled with insomnia; he would often awaken at night and vomit a small quantity of fluid. He was treated

by his family physician for nervous prostration, but grew steadily worse. In December, 1902, he was referred to me. One hour after a test-breakfast the stomach was empty. Forty-five minutes after a test-breakfast 10 cc. of fluid containing unchanged bread crumbs were removed. The reaction was neutral. Pepsin and rennet were absent. Labzymogen was absent. There was no mucus, no smell. It looked as if the bread crumbs had lain for one hour in a little water. After various test meals the stomach emptied itself with unusual rapidity. Three hours after an ordinary meal the stomach was usually empty. This rapid emptying of the stomach is exceedingly characteristic, and was present in all my cases of achylia, with one or two exceptions. This patient has been under my care since December, 1902, and has changed but little under treatment.

A very similar case has been under my observation for the past four years. Mr K., the patient, is 45 years of age, and a merchant. His father died of cancer of the stomach. His paternal grandmother died of the same disease. The patient was much affected by the death of his father. Six months later he began to have gastric symptoms. He lost 25 pounds in weight. He was referred to me in 1899. At that time his chief symptom was vomiting, occurring about three hours after his meals. The vomited material consisted of a few ounces of sticky fluid, odorless, colorless, of neutral reaction, and tasteless. This vomiting occurred from two to three times every 24 hours, the fluid being ejected with marked force, and without warning. The result of examination tallied in all respects with those of the previous case. Gastric peristalsis was excessively active. Two and a half to three hours after the ordinary meal the stomach was empty. The vomiting in these two cases was the most pronounced symptom, and has occurred in one other of my cases. This particular type of vomiting is very characteristic of achylia, but has not been described by other writers. This patient remained under my care several years without marked change. At present his health is markedly improved, though there has been no change regarding the gastric secretion.

In some cases of achylia gastrica all of the symptoms are referred to the bowels, and bloating accompanied by diarrhea is the chief symptom. The following is an illustrative case:

Mrs T., aged 45, was well up to 1901, when she was troubled with sciatica. After varied treatment she was placed by her physician on heroic doses of KI. After several months the sciatica disappeared. Since that time symptoms of intestinal disturbances have appeared. She is troubled with paroxysmal attacks of diarrhea, occurring every week or ten days. Between the attacks the bowels move regularly, but there is much distension and disagreeable flatulence. The appetite is fair. She was referred to me in August, 1902. Examination of the gastric contents revealed the typical condition of achylia in all respects. During the three months of treatment there was never a trace of gastric juice, or a sign of gastric digestion. An appropriate diet accompanied by lavage brought about a perfect cure, and since December, 1902, she has enjoyed perfect health. A recent examination reveals no trace of gastric juice.

The great majority of my cases have been in men. Eight out of the last ten cases were men in middle life, and most of them were more or less neurotic. It is hard in all cases to find a cause for the condition. I believe Einhorn is correct in assuming some of the cases to be merely functional in character, and dependent on a neurosis. The case of Mr K., given above, would suggest a purely neurotic origin, and I have had a perfectly typical case in a man whose brother was subject to attacks of dementia. On the other hand I recently treated a druggist for achylia whose previous history had been excellent, who presented no other evidence of a neurotic temperament, and who, without obvious cause, began to suffer from serious gastric symptoms. On account of the sudden onset and the absence of gastric juice I suspected carcinoma, but the subsequent history has proved the disorder to be perfectly benign.

I have seen several cases which were undoubtedly the sequel of chronic gastritis.

Mr B., aged 38, a cigar salesman, was in the habit of drinking beer with his customers, and would often drink 15 to 25 glasses daily without apparent injury. In January, 1902, he began to have vomiting spells of so violent a nature for days nothing would stay on the stomach except beer.

He would vomit long ropes of mucus, and the little food he took would be ejected coated with mucus. In April, 1902, he came under my treatment. The muscular activity of the stomach was excessive. There was complete absence of HCl., no pepsin, no labferment. Labzymogen was present. Mucus was present in large quantities. Under lavage and a milk diet the irritability of the stomach disappeared. There was no secretion of gastric juice at any time. On a milk and cereal diet he gained over 40 pounds, and has enjoyed perfect euphoria since July, 1902. In January, 1903, an examination revealed all the physical and chemical conditions characteristic of achylia gastrica. Although the appearance of the bread removed one hour after a test-breakfast is very characteristic, one should not make a diagnosis from it alone, or from a few examinations.

In August, 1902, Mrs S., aged 33, came to me for treatment for symptoms of chronic gastritis. The first four examinations revealed two conditions which I considered characteristic of achylia, *viz.*, increased motor function, and lack of apparent change in the crumbs. There was also no trace of HCl. After the fourth lavage, however, HCl. returned, and has since been regularly present in the gastric juice.

Achylia gastrica may be complicated by loss of function of the intestinal mucosa, and under such circumstances may become a serious disease. I have had a lady, now 59 years old, under my care for eight years, who, during all of that time, has had the greatest difficulty in securing sufficient nutrition. Her weight has fluctuated during that time between 76 and 90 pounds. Her stomach secretes nothing. Vegetable foods, unless specially prepared, reappear in the stools. Meat in slight excess is passed in the feces. Only the most modest quantities of easily absorbed foods are utilized by her digestive tube. Nevertheless she has enjoyed a fairly active existence and notwithstanding her achylia is now in as good health as she was many years ago.

Only under certain conditions will it be difficult to distinguish achylia gastrica from cancer of the stomach. In cancer of the stomach pepsin can be demonstrated in the gastric contents in a rather large proportion of cases. The actual dyspeptic disturbances of cancer are far more

marked; the tongue is furred; the appetite is wanting; the gastric distress is often intense, and the motility is usually impaired. These symptoms do not occur in achylia. The blood changes in cancer are far more marked, the signs of severe secondary anemia being rarely absent. In achylia the anemia is never so intense. The other symptoms and signs of cancer, hematemesis, tumor, belching, lactic acid, and bacteria in the gastric contents are all wanting in achylia. The chief symptom which both diseases may have in common is progressive loss of weight, and in all cases of achylia it is well to think of the possibility of cancer. As far as I know no case has been reported in which cancer developed in the course of an achylia.

The subject of treatment is one requiring the most careful study. Every effort to supply the missing gastric secretion by giving pepsin and acid, or other forms of artificial gastric juice, is futile, and as a rule worse than useless. In some cases of achylia the stomach is irritated by HCl. It has been suggested to aid pancreatic digestion by administering alkalies, pancreatin and preparations of bile. While theoretically sound this treatment in practice is useless, and I have never seen any benefit from it. We should bear two facts in mind when thinking out a treatment for achylia gastrica: First, the motor function is nearly always unusually active. Second, the intestinal digestion is amply sufficient for all the needs of the system, and no deterioration of health occurs when the stomach is removed.

Our treatment therefore will consist of an intelligent effort to ignore the stomach altogether. In cases in which gastric irritability exists lavage is indicated, and the diet must rigidly exclude such substances as are known to irritate the stomach, such as acids, raw fruits, tomatoes, spices, etc. When the symptoms are chiefly intestinal the diet must be directed entirely with those symptoms in mind. My experience has been that meat is excellently tolerated and utilized in cases of achylia, and I have had several patients regain omplete euphoria on a diet in which meat and raw eggs

predominated. When flatulence exists milk is a disturbing element. In other cases it may be well borne. The less we adopt theoretic considerations, and the more accurately we adapt the diet to the actual digestive capacity of the patient the better will be our results. Drugs are not indicated and can only be used occasionally to fulfill special indications.

DISCUSSION

Dr John Dudley Dunham, Columbus: One of the most important things to be considered in connection with the subject which the Doctor has brought before us is the difference between gastric carcinoma and achylia gastrica. If there is to be any advance along this line, which is certainly desirable, it is that we may have some method by which an early recognition of carcinoma of the stomach may be made. Many authors speak of the cachexia and great emaciation which comes with cancer, but this does not usually appear until the disease is well under way. I think, however, in the blood we have one means of differentiation between the cancer and achylia gastrica, and that is, in this latter disease we do not have any diminution of the red blood-cells as we have in cancer. In cancer we have the changes which are found in secondary anemia as well as a diminution of the hemoglobin. My experience has been with the microscopic examinations of the stomach contents that one finds bacteria present in achylia gastrica just in proportion as the food taken into the stomach contains bacteria.

Dr George E. Malsbary, Cincinnati: One of the most important points is the fact that the absence of the gastric juice must be regarded as a symptom, just as we look upon pain as only a symptom. We do not think of prescribing for a man's neuralgia only, we try to find the cause to treat, and so when we have an absence of gastric juice we endeavor to find the cause. In the vast majority of cases the cause is cancer of the stomach; occasionally the gastric juice is absent in gastric catarrh; much more rarely we may be able to make a true diagnosis of a purely functional disturbance of the stomach, *achylia gastrica.* The diagnosis of *achylia gastrica* calls for the recognition of the continuous absence of the gastric juice and the exclusion of cancer and catarrh of the stomach. In one of the Doctor's

cases, his description strongly suggested *hyperanakinesis ventriculi,* in which the peristaltic restlessness rapidly empties the stomach of the gastric juice and all other contents of the stomach, rather than *achylia gastrica,* in which the gastric juice is not formed. What is the cause of *achylia gastrica?* Syphilis and tuberculosis have been suggested as predisposing factors. Microorganisms, especially bacilli, have been found invading the tissues in these cases, and it is possible that they may play some rôle in etiology. Finally, *achylia gastrica* frequently develops upon a neuropathic basis. The essayist referred to the fact that the majority of cases occur in men. We are coming more and more to realize that the gentler sex has no monoply of the neuroses. In one case reported by the essayist, emphasis seemed to be placed upon the drinking of beer as a possible etiologic factor. In my practice among those who are more or less accustomed to imbibe the amber fluid, hyperacidity is more common than true *achylia gastrica.* In the way of treatment, probably most may be accomplished by lavage, with direct faradization of the stomach by means of the intragastric electrode, and the internal use of condurango or *nux vomica.*

Dr F. B. Entrikin, Findlay: There is one thing that I would like to emphasize in connection with these cases in which the diagnosis is obscure and your patient dies, that is, always endeavor to get a postmortem. Many times of course the friends and relatives of the deceased will object to it and you will not be able to get it, but in a year or two the family will say "Oh, if I had only had a postmortem." Last year I lost a very dear friend from some sort of stomach trouble in which I was unable to make a diagnosis, and the circumstances in this case were somewhat similar to the case which the Doctor has mentioned, in which the man had been sick for some time, and the father of this same man had been taken sick and died of some obscure stomach or bowel trouble, no postmortem being made, the son having about the same symptoms as the father. In the case of my friend his father had died with symptoms very similar to those which were manifested in him, and in the father's case the disease had been pronounced cancer, so the battle for life in the case of the son was very much harder. I believe honestly if a postmortem had been held on the father no cancer would have been found. There was a lack of acidity

in the stomach but the man had gotten to a point where he ate hardly anything on account of the distress which was caused by eating, and in that case Nature would not throw out acids to take care of the little food that he did take. I had a postmortem on my friend and found three perforations of the stomach and one distinct ulcer, and the most extensive adhesions I have ever seen. They extended all around the stomach and the organ was even adherent to the abdominal walls. It was also very much dilated. When the largest of the perforations occurred I was sitting near his bed and had been with him all night long. All of a sudden he grabbed his abdomen and said that there was something doing. Then he said "What would I have done if you had not been here with me," and he threw himself from side to side in great agony. I believe the violent handling of himself made the large rent which I found in the stomach which was large enough to pass a lemon through. There was also another rent of sufficient size to admit my index finger in the bottom of the stomach. I always feel that we should be sure of our diagnosis, and if not try to get a postmortem. The very mental influences brought about, and the feeling that some one member of the family dies of cancer will make harder the battle for life in another case in the family. So often the family will say "If we had only had a postmortem on father or mother we would be so much better satisfied," and when you get that feeling in your neighborhood you will be able to have more postmortems and more satisfaction out of the practice of medicine.

Dr John P. Sawyer, Cleveland: The time allotted for the discussion will not permit of more than a few words. Dr Bettman has spoken on several very interesting questions. I wish to call attention to the fact that these cases of achylia gastrica with great failure of stomach secretion show what a lesser organ in the intestinal tract the stomach is. We see cases in which there is a failure of stomach secretion amounting to an achylia gastrica, and still these patients have a feeling of euphoria. I feel that this is a very important point to bear in mind when treating this condition, when by tests of the stomach this diagnosis has been arrived at, for it is very true, as the Doctor says, that the benefits conferred on our patients will be largely by adjusting the diet. It is in this connection that I wish to

emphasize the fact that many of these patients come to you telling that they have trouble in the bowels, distension, flatulence, morning diarrheas, four, five, six liquid stools on arising in the morning. Many times this is a suggestive point which would lead us to look for the findings which the Doctor described. These cases very often do nicely on meat stuffs, withholding starches, cutting out sugars and allowing them as much other carbohydrate stuff as they are able to take care of. My experience has been that these cases of achylia gastrica are well treated on a mixed diet of meat and starches, but the meat must be carefully subdivided, the use of grinding machines must be employed if the grinders Nature supplies are at fault. I wish to especially emphasize the subdivision of meats, which enables us to give them to those who have acids, but no pepsin, or any of the digestive agents in the stomach. We see from this what a lesser organ the stomach is and how largely its real work is done by the bowel when it is unable to carry on its own work.

I would especially like to speak on the point that a neurosis has much to do with this condition. Very often these patients are people who have a very considerable amount of nerve strain, a strain which comes in business, in the family life, and very often there has been sickness or death in the family, or deep grief, something which has been a great strain on the nervous system. To attempt to treat these patients directly at home without a change of scene or surroundings is often disheartening work. If instead of directing attention to the local condition we attempt to see to it that the patient is put under better nervous conditions, that they have a change of scene, something that will occupy their thoughts, and gradually bring them back to a healthier attitude of mind and normal tonus, we will find that the bowel begins to take up the work which the stomach is unable to perform.

The question of diagnosis and pathology is one which might be discussed for a long time, and in a special society receive extensive handling. I feel that not enough attention has been given to the matter of diagnosis in this condition of achylia gastrica, and one of the requirements of the times in arriving at a diagnosis of this affection is persistent observation for a long time, to make the tests which are necessary.

Rheumatism in Childhood

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The etiology of articular rheumatism is a subject that has engaged the attention of both pathologists and clinicians for a long period of time. As a natural result, various theories have been advanced, only to be subsequently rejected in the light of later investigations. Climatologic and meteorologic changes. heredity, perversions of metabolism with resulting abnormal chemical processes, and bacterial infection have all been announced as prime exciting causes of this affection.

With reference to climate, to seasonal conditions, and heredity, we may say at once that, while they may be predisposing factors in many cases, they cannot possibly be considered as the sole causes. We do know that rheumatism is more common in certain climates, and certain seasons of the year, than others; we do know that certain families are "rheumatic," and yet we recognize after all that these things do not explain the incidence of the individual attack. Among the theories advanced to supply this missing link of knowledge, those of perverted metabolism, with resulting chemical changes, held sway for a long time. Thus Prout believed that the disease was due to an excess of lactic acid in the blood. Inasmuch as the normal amount of lactic acid in the human body is, even today, not definitely known; inasmuch too, as we have no reliable practical quantitative test for lactic acid in the blood, it is difficult to see how such a theory is to be substantiated.

Haig, and many others, believed that the disease was due to excessive formation of uric acid in the blood, but later investigations have shown that this theory does not rest upon any solid foundation of fact, in that the surcharge of the blood with uric acid cannot be demonstrated. The latest theories, and the most plausible ones (not because of their newness, however), would assign rheumatism to the category of diseases caused by microbic infection. As we see it in adults, rheumatism in its onset, its manifestations and its course, presents a striking similarity to

other infectious diseases. The typical febrile movement, the evidences of constitutional infection with local manifestation, the self-limited course with, at times, relapse dependent upon reinfection, offer an analogy to other infectious processes much too close to be merely coincidental. Added to this, various investigators have succeeded in isolating germs from the various organs postmortem, from the blood and rheumatic nodules *intra vitam.* Especial mention should be made of the work of two English observers, Poynton and Payne, who claim to have demonstrated absolutely that the exciting cause of rheumatism is a definite diplococcus. While it is perhaps not possible to accept this particular claim as absolutely proven, it is more than probable that the exciting cause of the disease will be found to belong to the pyogenic group of bacteria. If we conceive of an attenuated form of virus of this kind, without attempting to specify any species as yet, we can understand the theory which explains rheumatism as a more or less mild septicopyemia.

Naturally enough, the question at once arises as to how the germs gain entrance into the system. It is altogether probable that in the majority of cases the tonsil is the primary seat of infection, as was shown by Leyden, Meyer and Singer. Recently Menzer has demonstrated the presence of streptococci in the peritonsilar tissue in rheumatism. This is important, for it goes to show that we may have infection, not only through the tonsil, and thus into the lymphatic circulation, but also through the peritonsilar tissue, and so through the general systemic circulation. It is in this light that we are privileged to regard rheumatism as a true blood-poisoning, a true septicemia.

At the same time this theory takes due cognizance of those causes previously alluded to as merely predisposing, for it is easily conceivable that climatic, seasonal or hereditary conditions might so lower the bodily resistance that the germs would find entrance, and then upon suitable soil have the opportunity for subsequent development.

In a recent address Rotch emphasized the fact that pediatrics, as such, does not concern itself so much with the diseases *of* children, because there are not many diseases inci-

dental to childhood alone, but rather with the manifestations of disease *in* children, with the special peculiarities of disease which the period of childhood induces.

Rheumatism offers an excellent illustration of the case in point. Its clinical manifestations, as seen in childhood, are very different from those of adult life. In the first place, the arthritic symptoms are not nearly so well marked. In many cases we do not have the sudden onset with high fever, red, swollen, and intensely painful joints and the severe constitutional depression that form the symptom-complex in adults. The joints may not be greatly reddened and swollen. Indeed it is a point worthy of special insistence that the pain is not always referred to the joints at all. We have come to know, for instance, that the so-called "growing pains" of children are frequently rheumatic in origin, and to appreciate, furthermore, that at times they are the only rheumatic pains from which children suffer. Though arthritis is at its minimum, endocarditis is at its maximum in the rheumatism of childhood. As a matter of fact, the modern view inclines to the belief that heart-lesion is not to be regarded as a complication of rheumatism in the child, but as one of the manifestations. The close association of rheumatism, endocarditis and chorea has been recognized for a long time, and by many are now regarded as merely different phases of the same morbid process. Nor is it to be forgotten that rheumatism need not necessarily precede the other affections in point of time, nor must all three conditions be present in a given case. As Cheadle has put it, "Any one of the phases may be absent, one only may be present, or two, or all three. The different manifestations, again, may occur not only in any order and combination, but separated by varying intervals of time; following one another in quick succession, or some appearing months or years after the rest. Thus an endocarditis or a pericarditis, or a chorea, may occur first and alone, the joint affection long after."

In addition there are certain symptoms of rheumatism in childhood that demand special notice. *Peliosis rheumatica* is quite common in childhood. In many cases the child sickens with what appears to be an ordinary tonsillitis. After a varying

interval, usually measured in days, the characteristic purpuric rash develops, usually about the extremities. The spots are usually purple in color, of variable size, most often tender on pressure. In some cases the rash becomes generalized. Arthritic symptoms may develop, but need not. In a case recently under treatment in the children's ward of the Jewish Hospital, the tonsillitis and rash with the usual febrile movement and constitutional disturbance were present without arthritic symptoms. The history of the case showed that the boy had had several distinct attacks of articular rheumatism. Under the salicylates improvement was rapid. This condition is in all probability to be regarded as a "rheumatic equivalent," and its occurrence in a given case affords strong presumptive evidence of a rheumatic diathesis.

Rheumatic nodules also occur more often in the rheumatism of children than in that of adults, although in this country they are rare in either form. These nodules, first described by Barlow in 1881, are subcutaneous masses of fibrin, cells and fibrous tissue, varying in size from a pin-head to that of a small bean. They are most apt to occur over the malleoli, at the margins of the patella, or along the extenser tendons of the hands, fingers or toes. There is at the present time in the Jewish Hospital a boy 12 years of age suffering with articular rheumatism, who presents an exquisite picture of this rheumatic manifestation.

This case is of more than ordinary interest, and it therefore may be permissible to detail a few points of the history. The boy presents various manifestations of late hereditary syphilis, the specific dactylitis being especially well marked. The accompanying photograph, unfortunately not good, gives some idea of this manifestation. For two years this boy has been subject to attacks of acute articular rheumatism. On admission, there was moderate fever, swelling and pain of both ankles and wrists. Rheumatic nodules were particularly distinct along the extensor tendons of the right hand. The heart was markedly dilated, the dulness extending two fingers' breadth beyond the midclavicular 'ne on the left, and beyond the sternal margin on the right. A uble murmur was heard at the apex. At the junction of the

third rib with the sternum on the left side was heard a typical pericardial rub. Here we had the combination of arthritic manifestations, with endopericarditis, as we frequently find it in these cases.

Another symptom of rheumatism in children, often of diagnostic importance, is recurrent epistaxis for which no local cause can be found. The mechanism of its production is not clear, and yet the association occurs so frequently that it cannot be a mere matter of coincidence. Last year Phillips reported 10 cases of epistaxis all associated with rheumatism. The occur-

rence of so-called idiopathic nose-bleed in children is therefore frequently suspicious.

While the diagnosis of rheumatism in the adult is, as a rule, not a matter of difficulty, its recognition in childhood is not always easy. This is because of its atypical onset and course. Thus the onset of an endocarditis, which, as we have seen, may be the initial phase of the disease, is often very insidious.

Even the most careful examination may fail to reveal anything wrong with the heart other than a slight weakness, some irregularity and greater rapidity of action, though sometimes a faint murmur may be heard. The general constitutional symptoms of languor, depression and anorexia are not at all specific. It is in these cases that careful observations of the temperature,

continued over periods of time, are of great value. Continuous fever with slight remissions, even though of comparatively low degree, not explainable by the other definite infection, is one of the most reliable signs of beginning endocarditis that we have. Indeed, in an article entitled "Endocarditis and the Use of the Thermometer in Its Diagnosis," Brunton goes so far as to say, "If you find a murmur at the heart, or even in cases where you can find no murmur, if you find a temperature which runs a course much like that of quotidian ague in a case where you can trace no malaria, and where you can find no indication of suppuration, it is very likely indeed to be a case of endocarditis."

Again it is to be remembered that the chorea is not necessarily of the clear unmistakable type which allows a diagnosis to be made at sight. Very frequently the child is simply "nervous," awkward at play or at table, usually restless or irritable, showing only indications now and then of the characteristic choreic movements.

Of course, when all is said, in most cases the diagnosis is not difficult. But, as Holt has put it, the disease is more frequently overlooked than confounded with other diseases. In doubtful cases especial attention should be paid (a) to the family history, (b) to the previous history of the patient as regards slight joint stiffness without swelling, growing pains, nose-bleed, frequent attacks of tonsillitis and erythema, (c) the examination of the heart for signs of endo- or pericarditis and (d) the temperature. Careful search will sometimes reveal the presence of the tendinous nodules.

It must not be forgotten either that in the rheumatism of childhood, even in marked cases, we do not have the successive involvement of many joints as we do in adults. In children we very frequently have very few joints involved, and in many cases, certainly not gonorrheal in origin, (though gonorrheal rheumatism is not rare in childhood), but a single joint is involved. With reference to prognosis, it need hardly be said that the rheumatism in itself is rarely dangerous. The danger lies in cardiac manifestations. Unfortunately, one attack greatly predisposes to subsequent ones, and so the heart, which at first may escape, may

in a recurrence become affected. Prophylaxis plays an important *rôle* in the care of rheumatically inclined children. In cases in which the family history shows the existence of rheumatism, the predisposed child should be carefully watched. The indefinite symptoms before referred to demand attention; exposure to damp weather, rather than to cold weather, must be avoided as much as possible, and such definitely rheumatic symptoms as growing pains, recurring torticollis, etc., should receive appropriate treatment. In the line of prophylactic treatment too comes proper attention to the condition of the child's throat. The existence of adenoid vegetations and of enlarged tonsils especially, is a matter of concern, inasmuch as the tonsils doubtless form the port of entry for the rheumatic virus in many cases.

With reference to the actual management of these cases, it is well to remember that rheumatism in childhood is apt to extend over a long period, frequently measured by years. Crandall has expressed this idea very aptly in discussing the management of "rheumatic children" rather than simply the question of rheumatism in the child.

The relation of diet to rheumatism is still a question *sub judice.* While the uric acid theory of causation held sway, it was believed that nitrogenous foods were to be strictly eliminated from the dietary. The prohibition extended even to animal broths and eggs. It appears certain now, that rheumatic children do best upon a generous dietary, in which the special limitations are to be applied to the sugars and starchy foods. Malnutrition is frequently a factor to be considered in these cases, anemia is almost the rule. Under the circumstances, a liberal, nourishing diet, with moderate amounts of the more easily assimilable meats, with plenty of green vegetables, will be found to meet the indications most often. Special mention should be made of milk, which should be taken in large quantity.

Rheumatic children should wear flannel underwear the year round, its weight being varied according to season. Its value in diminishing the danger of chill is fully established. While exposure to cold itself is to be avoided when possible, it should be remembered that damp weather, with cold east winds, with t

ground covered with slush, is especially favorable for the development of rheumatism. For the actual attack the salicylates, in combination with bicarbonate of soda, offer the best plan of treatment. In order to get good effects from the salicylates, the quantities used must be rather large. While it is doubtless true that these drugs are somewhat depressing to the heart, it is just as true that children ordinarily stand proportionately large doses. When the case can be carefully controled, the use of large amounts at the outset so as to mass the effect, is of decided advantage, though this plan of treatment demands watchfulness on the physician's part. The salicylates certainly have a marked analgesic effect, even though there be some doubt as to their value in preventing cardiac trouble.

Local applications to the joints, if they be inflamed, are not always necessary. Simple wrapping of the joints in cotton batting is usually sufficient, though at times it is well to immobolize the joints by splints. Occasionally, the local application of 2% salicylic acid ointment has seemed to give some relief. The rapid development of severe anemia is one of the characteristics of rheumatism in childhood, and this needs to be met as soon as possible by the administration of ferruginous tonics. Indeed, as a matter of fact, the treatment of the acute attack itself is nearly always very simple. The point to be remembered is the necessity for keeping these children under constant observation for long periods of time. The danger of cardiac involvement, grave under any circumstances, is heightened by the tendency to frequent recurrences. The after-treatment is, therefore, of importance. One very necessary factor in this after-treatment is rest. The child should be kept abed for some time after the subsidence of all acute symptoms, even though an examination of the heart be negative. Prolonged rest, which means absence of cardiac strain, is one way of preventing heart lesion, a way not always successful of course, but a method of treatment worth trying in any case.

On the theory that rheumatism is of bacterial origin, and that the salicylates have a bactericidal, or antitoxic effect, it has been recommended to administer small doses of salicylates at

intervals (say during one week each month) for long periods of time. This is to be done even where there are no distinctly rheumatic manifestations in the hope of warding off attacks. This line of treatment has proved successful in a number of cases. But after all, the therapy of rheumatism in childhood is not a matter of drugs alone. Proper clothing, regulation of exercise, avoidance of exposure, prevention of anemia, and lastly, (and perhaps most important) attention to the condition of nutrition by the enforcement of a properly regulated diet will be found to be our most reliable aids in the management of a condition always troublesome, and frequently serious.

DISCUSSION

Dr George E. Malsbary, Cincinnati: Rheumatism is a term that is still used to cover a number of diseases and to act as a cloak to hide many failures in diagnosis. The time will probably come when we will no more think of making a diagnosis of rheumatism than is the intelligent physician at the present time satisfied with a diagnosis of neuralgia. Rheumatism has the same derivation from the Greek as catarrh, and was used by the old humoral pathologists to cover almost all diseases which were attributed to a humor flowing through the body. About the time of Ballonius, 1600, the term "catarrh" became confined to affections of mucous membranes, and "rheumatism' was limited to the painful diseases of the bones, joints, and structures other than mucous membranes that were not known to be due to any special or specific cause. Later investigations have isolated gout, arthritis, trichinosis, syphilis, tuberculosis, rickets, and osteomalacia. The term "rheumatism" is still used to cover at least five distinct affections:

Acute articular rheumatism,
Chronic articular rheumatism,
Gonorrheal rheumatism,
Muscular rheumatism, and
Nodular rheumatism.

Some work presented before the American Medical Association, at New Orleans, last month, would seem to indicate that possibly we may take from this list the cases of chronic articular rheumatism and place them among the

nervous affections. In either event they must be regarded largely as expressions of toxemia.

The cases of nodular rheumatism are better classified are *arthritis deformans.*

"Gonorrheal rheumatism" is at the present time a convenient but unnecessary term. Such cases are either cases of gonorrheal arthritis, being due to an invasion of the joint by the gonococcus, or they are cases of septic arthritis due to the septic microorganisms and occurring as a secondary infection in the course of or after gonorrhea.

The term "muscular rheumatism" is not so much used as formerly. Trichinosis is no longer considered a muscular rheumatism. Many of the cases still classified under this term are due to trauma, whereby muscular fibers are ruptured. Many cases are attributed to cold and exposure, and it has been proposed to substitute the term "myalgia" for muscular rheumatism, a change of doubtful utility, except from a *philologic* standpoint. The only requirement of a disease to be admitted to this classification is that it shall be characterized by pain confined to the voluntary muscles, not known to be due to any special or specific cause. Thus the temptation is afforded to use this term as a sort of dumping ground for imperfect diagnosis.

The form of rheumatism most frequently found in children is that commonly known as acute articular rheumatism. In children it is important to rule out especially rickets and syphilis before making a diagnosis of rheumatism. The essayist has referred to the arthritis being at a minimum in the rheumatism of childhood, whereas the endocarditis is at a maximum. This would suggest the possibility that such cases are septic in character. Indeed, it is probable that acute articular rheumatism is in many instances an expression of toxemia, due to the absorption of toxins. Such cases may be observed, for instance, in the presence of a follicular tonsillitis, the toxins being formed by the microorganisms in the crypts as in a test-tube. Not infrequently the attacks of articular rheumatism are preceded by an angina. In one marked case of rheumatism, I was able to jugulate the disease by the treatment of the throat. Again, I have removed the diseased tonsils, in old cases of follicular tonsillitis, and have been rewarded by a disappearance of an accompanying rheumatism. I do not mention these experiences as unique rather because they are becoming so common. Such

cases of rheumatism must be regarded as toxic in character, and it is logical that the disease should disappear after the removal of the focus of disease from which the toxins are being absorbed. The focus of infection need not necessarily be in the tonsil but may be in some other recess of the body. The importance of finding and removing the focus of infection in such cases is obvious.

In some instances acute articular rheumatism may be regarded as a modified sepsis. In such cases a streptococcus of a low degree of virulence is not infrequently to be found. At the present time I am very much interested in the use of the antistreptococcus serum in the cases of rheumatism in which this microorganism is demonstrated.

Dr G. A. Hermann, Hamilton: I would like to ask the Doctor if he has ever had a case resulting in paralysis of the lower extremities. I had a child under my care who had an attack of measles who ten days after this attack developed a case of rheumatism. I put the child on the salicylates for a month when the child developed a paralysis of the lower extremities and is still going around in that condition. The child is four years of age and apparently healthy.

Dr William D. Stewart, Toledo: In the majority of instances I think the condition rather than being a rheumatic state, such as we find in the adult, is due to malnutrition, that is to say as we find it in children. I do not deny that we have rheumatism in children, but in my experience I have not been encountering these conditions frequently, but I do often run across a condition of malnutrition which may produce symptoms somewhat similar to rheumatism. We also find the symptoms as described by the Doctor occurring in rickets and scorbutus. Hence if we direct our energies toward the correction of the malnutrition in many instances we will find that the so-called rheumatism will disappear.

Dr H. A. Beeson, Leesburg: In the treatment of the acute and subacute rheumatism we rely upon the salicylates for the reason that the treatment is almost specific. It relieves the pain, acts freely on the kidneys and the emunctories generally, and therefore we use it, and do not attempt to relieve the pain with something else. Dr Comegys, deceased, of Cincinnati, was of the opinion that he had a

form of the salicylate of soda which was more prompt, active and useful than any other, and he made it as he used it. He called it the "nascent salicylate of soda." His formula was about this: Soda salicylate one drachm, soda bicarbonate two drachms, glycerin two ounces and aqua destillata q. s. to make six ounces. He dissolved the bicarbonate of soda in the menstrum first, then added gradually the salicylic acid. As you know effervescence will be very prompt and strong. Adding the acid gradually you will have, when the solution is complete, a very pleasant syrupy solution of salicylate of soda. Of this he recommended that there be given from one teaspoonful to a tablespoonful every three hours. This is certainly a most effective remedy for acute and subacute rheumatism, and I would recommend it heartily.

Dr Alfred Friedlander, Cincinnati, closing: The use of antistreptococcic serum would logically follow, if we believe rheumatism a form of septicemia, but personally I have had no experience with it. With reference to the paralysis following rheumatism, it is to be remembered that neuritis is very common after the acute infectious diseases of children. One need only refer to multiple neuritis, or to acute anterior poliomyelitis. It is certain that there are many cases that look like rheumatism which are not. As for malnutrition in children, while it is, of course, enormously common, I hardly believe that it will cover all cases of rheumatism. I certainly do not think that all cases of rheumatism can be classed as simple malnutrition. Many cases of rheumatism show marked evidences of malnutrition. Many cases are combined with rickets and scurvy, but they are genuine cases of rheumatism for all that. It is not to be forgotten that rheumatism occurs at all times of life, and in many forms. Regarding salicylate of soda, I would say that I have had the best results from the salicylate prepared from the natural oil of wintergreen, as I find that the stomach of children is much less easily upset by this preparation.

My Experience with Large Doses of Creosote in Tuberculosis—A Report of Cases

BY E. S. RAY, M. D., HAMDEN JUNCTION

From the earliest dawn of medical history down through the centuries to the present time, tuberculosis has been and is now humanity's greatest scourge. It has respect for no station of life, but invades alike the homes of wealth and the hovels of the poor. Like Hamlet's Specter, it walks the earth not unrebuked, but nevertheless unscathed. Its army of annual victims numbers nearly one-third the total for all diseases. Until the dawn of the nineteenth century comparatively little was done to check its onward march. But the achievements of such men as Addison, Laennec, Virchow and Koch during the last three-quarters of a century promise to very materially reduce the mortality if they do not lead up to the total extinction of this greatest foe of mankind. During the early part of the period mentioned, Addison, Laennec, and later, Virchow, wrestled with the pathology of the tubercle and solved some of the great questions then before the medical world; but it remained for Koch to discover the bacillus tuberculosis and reveal in his after-investigations some of the brightest gems of modern pathologic thought.

Since Koch's discovery the profession all over the world has labored hard in the therapeutic field, both in laboratory and in active practice, to determine the conditions under which the cause or causes of tuberculosis cannot live; and I think I may say that the profession has been at least partially successful. Will you permit me today to add my mite to the wonderful volume of literary contributions on this theme?

The limits of this paper will not permit me to discuss the various forms of tubercular disease both with reference to its pathology and the organs involved. Nor will the same conditions permit me to dwell upon the oft-times pathetic

experiences of the active practician as he goes his rounds ministering to adult and child, to the pulmonary form in the mother and possibly the last tetanic agony of the meningeal form in her child; or the articular or osseous form in the son, and the intestinal in the father. These are familiar pictures to you and however much pleasure or profit we might derive from these discussions, the field is too broad for this particular theme.

Before passing to the reports of cases, I wish to say that during the last seven years I have treated all cases of tuberculosis coming under my care with large doses of beechwood creosote; indeed I have pushed the administration of the drug to the extreme limit of tolerance; while I have done this I have not failed to prescribe those helps in the way of out-door exercise, proper diet, and any other treatment which individual cases required. While I believe in large doses of creosote, and believe the large doses to be more effective than the usual small doses employed, I do not rely upon it alone, so that the special object of this paper will have been attained if I succeed in bringing to your attention the fact, demonstrated by my experience, that *the human organism will, after a variable length of time during which the dose is gradually increased, develop a tolerance for beechwood creosote which is indeed remarkable.* I have frequently had patients take from 400 to 600 drops of the drug daily for months without the slightest inconvenience. It occasionally happens that a transient dizziness will be felt after each dose, and one patient complained of backache *only* after he had reached the enormous daily dose of 850 drops. Sometimes the patient will reach the limit of tolerance for the stomach with much smaller quantities than those mentioned; but if the dose be diminished for a time then the patient may go on to double or three times the mount first rejected by the stomach.

I have almost invariably given creosote in capsules, ing the patient follow each dose with a drink of milk, ng in quantity as the dose of the drug increased. I

have usually given the dose three times a day after meals, but sometimes it is better to give the dose oftener and not so much at a time when the daily quantity taken is above 300 drops. The patient begins with three drops the first day and increases the dose one drop each day; but occasionally in urgent cases I have had the dose increased three to five drops each day. I have the dose increased in this way until dizziness or backache is complained of, indicating saturation, or until the stomach rejects it. This point will be found somewhere between 100 and 600 drops in the great majority of cases. When the point of extreme toleration is reached the patient continues that quantity as long as it is deemed necessary to administer the drug. If the patient improves and ultimate recovery takes place, it will be found in many cases that as improvement goes on the patient can bear less and less of the drug until ultimately only small quantities can be borne, *i. e.*, the point of toleration expressed in drops of the drug gradually diminishes as the patient improves. Observing this in many of my cases has brought the thought to my mind that possibly we may yet be able to demonstrate that a definite relationship exists between the amount of tubercular infection and the quantity of creosote required to counteract it. But this remains to be seen.

Case I: D. N., aged 40, came under my care August 13, 1895, and presented the usual physical signs and subjective symptoms of incipient hip-joint disease. This patient was presented by me at a clinic before the Jackson County Medical Society twice and there was no dissenting voice as to the diagnosis, so I deem it unnecessary to enter into his symptoms in detail. Suffice it to say that his temperature was above normal persistently for six months; percussion over the greater trochanter elicited pain; there was limited flexion of the thigh upon the abdomen, lameness, and pain in the joint. Later on during the following winter a small area of consolidation appeared in the left lung in front at the apex. This patient was under treatment about one year when he was deemed well enough to work as no symptoms had been present for two months; but upon tak-

ing up his work again on his farm he relapsed and was again placed upon the same treatment for eight months with final complete cure, there being only slight limitation of flexion of the thigh upon the abdomen. The treatment consisted of *rest* to the joint—I put him on crutches, not wishing to lose the beneficial influence of open air exercise—and for three months I gave him tonic and alterative treatment alternately with no result. I then conceived the idea of trying *creosote* in *large doses* with this patient. The train of thought which led me to do so was about as follows: I had to contend with a disease which cripples for life all or nearly all of its victims and this man has a wife and family dependent upon his labor. I believe creosote to be the only drug able to counteract the tubercular process in that joint; but to get enough of the drug into the joint structures to do this by the blood channels will require the administration of large quantities. I explained the situation to the patient and he readily consented to do as I wished. He began with the usual small dose and persisted bravely according to my directions, and his reward is that of having established a principle in therapeutics and being able to support his family without aid from anyone. This patient found his limit of tolerance at 850 drops of creosote daily. At this enormous dose he developed backache and was ordered to take only 600 drops daily, which he did, and the backache disappeared. This dose was continued some months until he was well. This is my only experience with large doses of creosote in tubercular arthritis.

Case II: E. N., aged 39, was a maiden sister of the case reported above. She came under my care in January, 1900, with a well-marked case of pulmonary tuberculosis of the fibroid form. She had been more or less indisposed for two years or more and after taking various patent medicines came finally under my care. I ordered her to spend much of her time in the open air and climb the hills adjacent to her home every day in order that every air cell might be put to work and the fibroid tissue kept from contracting. In addition to these measures she was ordered to take creosote in increasing dosage. I have every reason to believe she followed directions in every particular. I saw her, myself, take several 200-drop doses of the creosote when I made my calls. She steadily improved under this management until the following June. One day during that month

the dogs broke into the field where the sheep were grazing and attacked the flock. She ran about half a mile to the rescue of the sheep; returning home she was seized with a chill which proved to be the onset of pleurisy, from which she never recovered. This patient took 600 drops of creosote daily for many weeks, but after the attack of pleurisy her stomach would not bear large doses of the drug and in December following she died of the disease. My experience with fibroid phthisis is limited to two other cases than the one reported and although large doses of creosote were prescribed in all the benefit was only temporary, all ultimately dying of the disease. Still the benefit derived in the case just reported, although of two years standing when she came under my care, warrants the hope that even this form might be successfully treated early in the disease.

Case III: A. T., a married woman, aged 34 when she came under my care in March, 1897, was a typical case of pulmonary tuberculosis of the catarrhal form, her father and two sisters having died of the disease. Her temperature was 102° F., and the pulse was 120. She was greatly emaciated by exhausting night sweats. The apex of the left lung was crepitating and there were numerous coarse râles over both sides of the chest. Under the usual outdoor exercise, after the fever was reduced by creosote and rest in bed, and increasing dosage of creosote together with tonic treatment, this patient improved more rapidly than I had told her to expect. By the middle of June she was in excellent health, all symptoms having completely subsided; and a substantial gain in weight indicated that recovery was complete. I ordered her to take creosote all summer in order to forestall if possible the relighting up of the disease when winter came on. The winter of 1897-98, however, passed without incident, but in the fall of 1898 she contracted influenza and for a time the old trouble seemed to threaten her. She again took large doses of creosote and the result was most gratifying. This patient found her maximum of toleration at 250 drops, but since the attack in the fall of 1898 she has remained perfectly well, having borne two children, the last one in January of this year.

Case IV: This case, a woman, Mrs N., aged 24, came under my observation in May, 1898. Both parents died of consumption. She gave a history of having been in poor health for four years, catches cold easily and always coughs

with a cold. She had a child four months old at the time she came to my office. When the child was six weeks old she passed blood by the bowel and this has been repeated twice since. Physical examination showed evidence of chronic pleurisy on both sides, bronchial râles over both lungs and the voice was husky. She had a temperature of 100° F., and a pulse of 96, and had lost 10 or 12 pounds of flesh. I diagnosed chronic tubercular pleurisy and placed her under the usual treatment of out-door exercise, tonics and gradually increasing doses of creosote. She found that 450 drops was her maximum of toleration, and this daily quantity was continued for many months. Altogether she was under care about 15 months and was discharged in good health, all symptoms having completely subsided.

Case V: This patient, Miss B., a single woman, 29 years old, gave a history of having coughed about four months, spitting up tough, yellowish sputum. Night sweats and loss of sleep from troublesome cough at night had reduced her weight 26 pounds. The pulse was rapid and her temperature varied from normal to 103° F. at the various times I saw her. The upper portion of the right lung was dull on percussion and a few subcrepitant râles could be heard over the same area; and numerous coarse râles over both lungs. This patient came under my care in October, 1899, and was placed under the usual treatment followed in the other cases reported. On November 9 she was taking 450 drops of creosote daily and was much improved, the night sweats having ceased and the appetite having returned. The history of this case is still further improvement until she went anywhere she pleased feeling comparatively well. She was a wilful woman and, against the advice of her mother, exposed herself unduly in a snow storm during December from which she contracted acute pneumonia. From this she never recovered, dying, I verily believe, as a result of her own folly.

Case VI: This patient was a married woman, aged 28. She had borne five children in rapid succession, the baby being about four months old at the time she came under my care in August, 1899. One sister died of consumption and she had a sister and brother sick with the disease at that time. This patient had measles immediately after her last confinement and never recovered from the cough. At the time of my first examination she was extremely hoarse,

being scarcely able to speak above a whisper. Her temperature was 102° F. and the pulse was 130. Coarse bronchial râles were found all over both lungs but no crepitation nor consolidated areas could be discovered. The sputum was thick, yellow and difficult to raise. I interpreted this case as one of laryngeal tuberculosis following measles with subsequent bronchial infection. She was placed upon creosote and strychnin but was unable to take more of the former drug than 30 drops three times daily, her stomach rejecting larger quantities. She was so prostrated and emaciated from the constant purulent infection that it was hopeless from the beginning, and she died six weeks after treatment was begun.

Case VII: This patient, Mrs R. M., came to my office in February, 1900, giving a history of having a cough lasting all fall and winter. She had taken a bad cold, possibly influenza, in September preceeding. Her mother died of fibroid phthisis. Her temperature was 101° F., and the pulse was 110. She was pale and listless, and had lost considerable flesh. Physical examination revealed coarse gurgling râles over most of both lungs and in the right lung on a level with the third and fourth ribs in front there was a consolidated area. Her appetite was bad and the bowels were constipated. This patient was put upon creosote and ordered to take it in the usual way. Her maximum dose was 450 drops daily and she was under treatment about six months, recovering completely. She has since passed through an abdominal operation for ectopic gestation and at present remains in perfect health.

Case VIII: The last case which I shall report is as follows: A married woman, Mrs C., aged 35, mother of four children, was treated irregularly during the fall and winter of 1899 and 1900 by several physicians for what was supposed to be intestinal catarrh. She came under my observation in March, 1900. At this time I found a fairly typical case of intestinal tuberculosis with some involvement of the bronchial mucosa. Her temperature was 102° F. and her pulse was 130. She was coughing considerably and sweating at night. She had almost constant diarrhea and was greatly emaciated and exhausted thereby. This woman was practically bedridden and had made preparation to die. She had summoned a physician only to get something for the exhausting diarrhea. Physical examination revealed ten-

derness over the abdomen, "pot-belly" appearance and abdominal parietes so thin that I could plainly observe the peristaltic movements of the intestines through them. Her lungs were not involved so far as I could discover but there were coarse râles all over the chest, indicating bronchial disease.

This patient was given a preliminary course of calomel sufficient to render the alimentary canal as free of noxious material as possible. She was then placed upon the usual creosote treatment and ordered the proper dietary and outdoor exercise as soon as she was strong enough. She increased the creosote 15 drops daily and her stomach tolerated it nicely. She improved steadily after she had reached 200 drops daily, and it was thought unnecessary to give more than 300 drops daily, so this dose was continued when she had reached it. By August this woman was completely restored to health, even the "pot-belly" condition disappearing under appropriate physical exercise.

DISCUSSION

Dr Frank Warner, Columbus: This subject is one which is certainly of great interest. When Dr Ray announced the treatment of tuberculosis with large doses of creosote, I came out hoping that he might present something to us that would give us new hope that we might be able to do more in the future than we have in the past for tuberculosis, but I must confess after hearing his paper that he is of a much more hopeful disposition than I.

The first case which the Doctor reports was one of arthritis which he says was of a tubercular nature, but which, however, he has not demonstrated. Even if it were, we know that many of these cases of hip-joint disease which we believe to be tubercular in nature recover without a vestige to show that it existed, so that so far as the use of creosote in that disease is concerned I do not believe that he makes a case. Coming to the lungs, again he has not demonstrated that a case of pulmonary tuberculosis existed. He does not say that he demonstrated the presence of the tuberculosis bacillus, and even though demonstrated, I do not see that he has succeeded any better with these large doses of creosote than he would have done without them, for death resulted in the majority of the cases. Only one of the cases reported lived for a number of years, and is still living. I am not unmindful of the fact that in most of the cases of

pulmonary tuberculosis the tendency is to show from time to time an improvement irrespective of any treatment. There will be times when the disease will become aggravated, hectic fever will develop, and then the symptoms will subside, and the patient will appear very much better and give us a false hope that they will recover. This is the history with or without creosote. Creosote has to be given in sufficiently large doses to destroy the tuberculosis bacillus. If given in large enough doses to destroy the germs it has to be given in doses sufficiently large to destroy the tissues, so that it does not seem clear to me how he expects to destroy the germ by the use of creosote, or to make any advance in its treatment in the manner stated. What he calls the "accessories" in his plan of treatment, the employment of fresh air, judicious exercise, good food, etc., are more valuable in my judgment than the creosote itself. I wish to bring out one point in regard to exercise. To recommend exercise to a patient not suffering in the active stage is a great aid in the treatment, but to direct a patient to exercise who is suffering with an elevated temperature, or with a mixed infection, I believe to be very harmful.

Dr T. E. Keelor, Lebanon: If I could get something to help my tubercular patients by coming to the meeting of this Association, that I would be sure would help them, I would feel that I had been more than repaid for coming. I admire Dr Ray for the spirit which he has shown in his paper. It reminded me of my old college days down in the Ohio Medical College when Prof Whittaker used to say, "saturate them with creosote." I admire this spirit of progress, and if I were sure that creosote would help them in the latter stages of tuberculosis I would pour it down them by the teacupful if necessary. I do not believe in throwing cold water on a system which affords any chance of relief. I think I speak the sentiments of every one present when I say that I am anxious for something to help tuberculosis.

Dr Frank Warner, Columbus: I desire to call the speaker's attention to the fact that Dr Whittaker changed front completely on that method of treatment, and stated that any remedy in order to destroy tuberculosis bacillus would have to be strong enough to destroy the tissues a[illegible] In this connection he mentioned creosote especially.

Dr T. E. Keelor, Lebanon: Dr Whittaker used to tell us that some of us would go out into the country to practice and when he had nothing to do to study tuberculosis. He was a student under Dr Koch.

I rise especially to commend the author of this paper for trying to do something for the benefit of those suffering from this dread disease.

Dr John P. Sawyer, Cleveland: I think it is most interesting to know of these immense doses of drugs given in this fashion. It is also interesting to know what a degree of tolerance the stomach and intestinal canal can have. To put into the stomach or intestinal canal a large amount of a drug or food stuff is not to put it into the body. The question occurred to me while the essayist was reading as to whether he had undertaken any research into the quantity of creosote or its derivatives discharged through the intestinal canal and the urine; and again, if there was any nephritic irritation from its use. Such points would naturally have to be determined in order that we might know whether or not the drug exhibited in such large doses had any other effect than simply to pass through the intestinal canal. I should be glad to know of the results of such investigation.

Dr C. S. Chamberlin, Cincinnati: There seems to be a revival in the use of creosote in the treatment of tuberculosis. In this connection it might be well to emphasize a warning which has recently been made against the use of creosote which is prepared from coal-tar. These massive doses of beechwood creosote have been well borne, but disastrous results would ensue if the coal-tar preparations were used.

Dr E. S. Ray, Hamden Junction, closing discussion: In reference to the confirmatory evidence spoken of by the first speaker, I would be only too glad if I had the ability and means at my command to confirm these reports with the proper bacteriologic blood, etc., examinations, but my paper is only a clinical report of my own experience with the drug upon patients who came under my care. I have not, however, the means nor the ability to make the proper examinations which I know would be of interest to this Association.

The history of the case which I diagnosed as tubercular arthritis will demonstrate at least to the majority of persons

present that this was a genuine case of tubercular arthritis. The sister of this patient died afterward of tuberculosis. The consolidated area in the left lung was distinctly crepitant for some weeks but finally cleared up under the administration of creosote. These two points in this case demonstrate that this was a case of tubercular arthritis.

What have small doses of creosote done? Shall we fold our arms and administer five drops three times a day and not undertake any larger dosage? I must thank my friend from Lebanon for so ably supporting me. I expected to meet with a storm of opposition; but someone must go out into these new fields and investigate. It is not necessary I think to administer the drug strong enough to kill the tissues in order that it may have an effect upon the tubercle bacillus. I administered the drug in a diluted form with milk, as much as a pint often being taken with each dose of creosote, and I still contend that beechwood creosote taken in this way is not poisonous in any reasonable quantity. As to the examination of the urine and the stools, I made the ordinary physical examination which all physicians make. There has been no decided creosote odor to the stools or urine at any time. I believe that creosote is broken up in the system, possibly something else other than creosote is eliminated, but what it is I am unable to say. I have frequently examined the urine to determine if creosote was eliminated as such but I have not been able to demonstrate it in the urine, or the stools.

Local Treatment in Common Diseases of the Lungs

BY JOHN A. THOMPSON, M. D., CINCINNATI
Academy of Medicine of Cincinnati

A large proportion of the work of most practicians of medicine is the treatment of diseases of the respiratory tract. A few common diseases of the lungs bring to us a large percent of our patients. With these disorders so prevalent, it is always profitable to review our work and determine whether or not we are using the best possible means to aid in the recovery of those whose health we are expected to restore.

The common pathologic conditions we meet are acute catarrhal bronchitis, chronic catarrhal bronchitis with its complications, such as bronchiectasia and emphysema, bronchopneumonia, acute lobar pneumonia and its sequels, interstitial pneumonia, and pulmonary tuberculosis with its varied pathologic changes in the tissues of the lung. Less common are pulmonary conditions secondary to diseases in other organs, such as hyperemia, edema and infarcts. At rare intervals syphilis attacks the lung either as a pneumonia, gumma or abscess. With the exception of interstitial pneumonia and tuberculosis, the diseases of the lungs that we are expected to cure involve primarily the mucous membrane. In both the excepted diseases there is a secondary inflammation of the pulmonary mucosa. Stated in the simplest possible way, the diseased condition that we are expected to treat in the lungs is an inflamed and infected mucous membrane. In normal conditions the mucosa of the trachea and bronchi is sterile. In acute bronchitis it is infected chiefly with streptococci. In other cases pneumococci, staphylococci and the influenza bacillus are present. These same organisms are found in chronic bronchitis, bronchopneumonia and their complications. They are also the pathogenic agents in the secondary infections of tuberculosis producing the bronchitis, the cavities and many of the septic conditions of that disease.

The reparative process of an inflamed and infected mucous membrane is not easily influenced by medicines which must be carried to it through the blood. It is easily and definitely aided when we can apply our remedies directly to the diseased area. Probably the reason expectorants are not more effective is that they are decomposed in the process of absorption, and we do not know in what form they reach the lung. Of the common expectorants chlorid of ammonium alone reaches the lung with the same chemical omposition as when ingested. Remedies that can be used rectly on an inflamed membrane are of known composition d effect. They can be changed to meet the conditions

present, with no uncertainty as to their form when they reach the point where they are needed.

Remedies can be applied directly to the pulmonary mucosa either by nebulizers, sprays or by tracheal injection. Nebulized fluids or those broken up by sprays are of comparatively little value. They are carried only where the tidal air of respiration takes them and it does not enter the badly diseased areas. When a large quantity of a volatile remedy is put into the trachea and bronchi we know by the law of diffusion of gases that it will be carried into every portion of the lungs where a bronchus or alveolus is open. The only method by which a sufficient quantity of medicine can be introduced directly into the lungs is by tracheal injections.

Against this method of direct medication the objections are urged that it is painful and dangerous. It is noticable that these objections are made only by those who have had no experience with this treatment. The physician who has employed it and the patient who has received the benefit of it are both enthusiastic in its praise. Patients to whom I have given tracheal injections in attacks of acute bronchitis return and ask for a repetition of the treatment in subsequent attacks. This is sufficient proof that the treatment is not painful. Spasm of the glottis may be caused by remedies that are too irritating, but that can be easily avoided by a proper choice of the solutions used. The only other possible danger is that the cough following the injection may cause a hemorrhage in advanced cases of tuberculosis. If the medicine has been properly chosen there is little cough, and that is not violent after an injection. Thousands of injections have been given for the relief of symptoms in cases of pulmonary tuberculosis and the first hemorrhage is yet to be reported. The danger must be so slight as to be a negligible quantity.

Judging by letters I have received after the publication of previous articles on this topic the method of givi-

tracheal injections is not generally understood. The technic is as follows:

The patient and physician are seated in the usual position for a laryngoscopic examination, with the light on the patient's right side at the level of the mouth. The patient protrudes the tongue and grasps the tip between the thumb and first finger of the left hand. The doctor focuses the light, reflected from his forehead mirror, on the base of the uvula. The laryngeal mirror, held in the left hand, is passed back carrying the uvula and soft palate with it until an image of the larynx is obtained. Guided by this image the operator passes the curved tip of his syringe, held in the right hand, back through the mouth and down in the throat until it is directly over the glottis. Then as the patient inhales, thus opening the glottis, the medicine is injected directly into the trachea. Usually there is a little cough following the treatment. Should the cough be violent or prolonged less irritating solutions must be used. The action of a properly chosen remedy is to relieve the irritation, cough and soreness for hours.

The vehicle in which medicines are dissolved must be an oil. Alcohol and water are too irritating, causing spasm of the glottis and severe pain when injected. This necessity for an oily vehicle greatly limits the remedies which may be used by this method. But we have a number of active remedies soluble in oil or miscible with it and volatilizing slowly at the temperature of the body. The vehicle used is either olive oil or one of the light petroleum oils. The latter is the better. In it we may dissolve menthol, camphor, creosote carbonate, monochlorphenol, oils of cinnamon, cloves, eucalyptus and others of similar action.

With this condensed statement of the principles of direct therapy in diseases of the lungs we can consider their application to individual cases. In acute catarrhal bronchitis injections should not be used until secretion has been reestablished. The mildest solutions cause pain in the first 1 hours while the membrane is in the dry stage of inflam-

mation. The abortive treatment by sudorifics, such as Dover's powder, hot drinks or hot baths, is better at this stage. As soon as secretion begins again weak solutions of menthol and camphor may be injected daily with marked benefit. The cough is lessened, the sputum loses its purulent character and the quantity is much reduced. The cure of an attack of acute catarrhal bronchitis is generally accomplished by direct medication in one-half the time required by internal treatment. Another advantage of tracheal injections in these cases is that with them there is much less danger of a chronic, subacute tracheitis and bronchitis being left as a sequel to the acute attack. I draw this conclusion from observation of many cases of chronic bronchitis. Acute attacks in these cases aggravate the chronic disease. When direct medication is used acute exacerbations prolong the treatment but do not notably increase the chronic inflammation.

In uncomplicated chronic bronchitis the comparative value of internal and of local treatment may be illustrated by one of many cases. F. H. B., aged 60, suffered from chronic bronchitis for 18 years before receiving local treatment of the diseased membrane. He is a man of good physic and of excellent habits. He had been under the care of many excellent physicians with little or no benefit. He was very skeptical in regard to doctors' promises and heard my assurances of relief with the tolerant smile of one who hears again an oft-told tale. He was given injections every second day of a solution containing 10 grains each of menthol and camphor to an ounce of *Ol. Petrolati Alb.* As he improved the interval between treatments was lengthened. The quantity injected was at first half a dram, later a dram to a dram and a half. The result was a complete cure. The patient used a spray for the local inflammation in the nose and throat, but no internal treatment was given.

In chronic bronchitis, complicated by asthma, another case shows the superiority of tracheal injections. A. D. B., aged 40, physician, of good habits, had chronic bronchitis

with severe attacks of asthma. In spite of systematic treatment the disease became worse until he was seriously considering abandoning his profession for some occupation requiring less exposure. I began treating him early in the winter of 1900-01. The injections of camphor-menthol proved injurious to him and a solution containing oil of eucalyptus, half a dram to the ounce, was substituted. His recovery was prompt. Although exposed, as every general practician of medicine must be, in the two succeeding winters he has had only two slight colds and no asthma.

In chronic bronchitis with dilated bronchi whose normal tissue has been replaced by connective or scar tissue at the point of dilation, a moment's thought will show the uselessness of internal treatment. The blood-supply to the diseased parts is so limited, only an infinitesimal amount of any remedy can be carried to them by the blood. The same reasoning applies to tubercular or syphilitic cavities in the lung. By tracheal injections enough antiseptic medicines can be introduced to disinfect the cavities. In bronchiectasia this disinfection is shown by lessened cough and expectoration, and the sputum loses its offensive odor, becoming mucus instead of purulent. In tubercular cavities we note the same improvement in symptoms with the additional gain of lowered range of temperature and cessation of night sweats.

In chronic bronchitis complicated by emphysema no improvement in the symptoms due to structural changes in the lungs may be expected from any treatment. The best we can do is to cure the chronic inflammation, thus diminishing the liability to acute exacerbations and further destruction of the walls of the alveoli. The cure of this chronic inflammation can be accomplished by properly chosen tracheal injections. There is no other treatment that is nearly so effective in this condition.

In the acute stages of bronchopneumonia, injections that are not irritating allay the cough and pain in the chest. They produce a rapid change in the character of the secre-

tion. It becomes more fluid and less purulent after a few treatments. Recovery follows in much less time than when internal treatment alone is used.

In chronic bronchopneumonia improvement is shown after a few tracheal injections in cases that have not been benefited by any other form of treatment. Should there be no underlying tuberculosis nor complications in other organs; complete recovery is only a matter of persistence in treatment.

In acute lobar pneumonia the conditions are not such as to indicate local treatment of the lung. After resolution has occurred, when the smaller bronchi are again open, the remaining inflammation may be cured by tracheal injections even when it proves intractable to other treatment. With this treatment the number of pneumococci in the sputum diminishes rapidly, the expectoration loses its purulent character and soon stops. The cough becomes less frequent from the beginning of the treatment and ceases entirely with the cure of the local inflammation. The quicker recovery from pneumonia with local treatment in the later stages lessens the liability to secondary infections and such sequel as interstitial pneumonia.

Interstitial pneumonia is a secondary disease. Once well established there is no hope of improving the condition of the lung when structural changes have already occurred. All that can be accomplished is to prevent the spread of the chronic inflammation and the extension of the disease. The superiority of local to general treatment for this purpose needs no argument to establish its greater value.

Tuberculosis of the lungs presents several conditions when tracheal injections give results that can be obtained in no other way. We meet cases occasionally in which the tubercular process seems most intense in the pulmonary mucosa. In these cases the cough is so violent as to produce frequent vomiting and in this way nutrition is greatly impaired early in the case. Often, too, these patients are unable to sleep and they are exhausted by loss of rest

Sedative injections lessen the frequency and violence of the cough, enable the patient to sleep and to retain food and in this way make recovery possible. If the cough in such cases is controled by opiates given by the stomach, the consequent interference with nutrition makes a cure of the tuberculosis very doubtful. When relief of the symptoms is obtained without impairing nutrition, many of these cases recover. When in pulmonary tuberculosis secondary infection has occurred and there is purulent expectoration, the only way of lessening the infection is by the direct application of antiseptics to the diseased parts. The futility of treating internal suppurations *per orem* is sufficient proof of this statement. In cases in which daily injections of suitable remedies are given the expectoration diminishes in amount and becomes less purulent. The temperature range becomes lower and night sweats are checked. The danger of the infection of new areas in the lungs or of the larynx is not nearly so great. While the cure of these advanced cases is not expected, the symptomatic relief is marvelous, and life is prolonged.

If I should attempt to summarize in the fewest possible words the advantages of tracheal injections as I have learned them in 11 years' use, the result would be as follows:

In acute inflammations of the mucous membrane of the lungs the time of treatment is reduced one-half. In chronic diseases we can cure cases and relieve symptoms when no benefit can be obtained by ordinary treatment.

DISCUSSION

Dr John P. Sawyer, Cleveland: A year ago I asked Dr Thompson to read an article before this Association calling attention to this measure which I thought was not receiving the attention which is its due. The Doctor has presented the subject in a very comprehensive way, and I am very glad indeed to be here today to add my little testimony as to the great value of this measure of treatment. For years I have been employing it and have been uniformly delighted with the results, and I am sure if those of you who have not -ied it will make a trial along the lines laid down by Dr

Thompson you will take great pleasure in its use and have a most efficient method of treatment when medication by the stomach or hypodermatically is not possible. Dr Thompson has spoken of the laryngoscope. I have discarded the use of this instrument, and I no longer employ it either for the first, second or any subsequent injection. This, however, I understand is not the common practice of those to whom the laryngoscope is an instrument in almost constant use. If patients come to the office it is well to use it, but it is not necessary. In my patients I produce a temporary apnea, a failure of the necessity for immediate breathing, by instructing patients to take in quick succession a number of respirations through the mouth simply dropping the lower jaw without a protrusion of the tongue. The curved tube is then easily brought into the mouth and carried back until as the patient is instructed to take a long inspiration the injection is accomplished with the greatest ease and in the most cases with little discomfort to the patient, and you are not annoyed by the laryngoscope. This method has been adopted by a considerable number of gentlemen who have practiced this more or less at my suggestion in my neighborhood and with a very considerable degree of benefit and saving of time. In fact I have instructed intelligent patients in the method of taking this treatment so that they have been able to go ahead with it themselves. Of course not all patients are sufficiently intelligent to practice intratracheal injections themselves, but I now have several patients who are doing it regularly.

To the list of solvents recommended by Dr Thompson I would recommend the use of glycerin. I have found that Price's glycerin is a most excellent menstrum and has certain advantages which are not to be overlooked in the combining of drugs for these injections. There has been considerable amount of allusion in English literature to this method of treatment, some in America, the Germans have not used it, and the French somewhat. Back in the fifties, Green, of Philadelphia, by means of a probang carried medication down into the bronchi. He used nitrate of silver, and was a pioneer in this method of treatment. In writing on this subject I have found some men, notably Campbell of England, who claims great benefit in the treatment of incipient tuberculosis from the use of guaiacol or creosote given by the intratracheal method. This seems to be very

rational, and he claims to have had most excellent results from this treatment.

Dr Walter H. Merriam, Cleveland: About four years ago, shortly after the publication in one of the journals of Dr Thompson's method of treating tuberculosis of the lung by intratracheal injections, a patient came to my office from one of the towns outside of Cleveland with what anyone would have considered an extremely advanced case of tuberculosis, and an examination of the sputum and physical examination gave positive evidence of this condition. I did not offer any hope of recovery and scarcely any hope of relief, but I determined, however, to use this method of treatment on this case. It was the first time that I had endeavored to use it and was moderately successful. That night the patient slept well and coughed but very little, the first time that such a thing had occurred in many months. I sent her home, sending a letter to her physician and with it a copy of the journal in which Dr Thompson's method was described. I heard from this patient about a year later. She was alive and no worse than when I had seen her. When I first saw her no man would have expected the woman to live three months. Two years ago Dr Sawyer referred a woman to me. She was about 55 years of age and a diagnosis of tuberculosis (which was unquestionably correct) had been made in her case. She was having night-sweats and a temperature ranging from 99° to 103°, loss of appetite and weight. I have given her this treatment at as frequent intervals as possible for the past two years. She is in better condition than she was two years ago and while the signs in the chest remain she coughs very little and has only an occasional night-sweat. So much for two cases of pulmonary tuberculosis treated by this method. I have also adopted this plan of treatment in several cases of bronchitis and I can vouch for everything which Dr Thompson has said in the cases in which I have employed this treatment.

Dr Thad. A. Reamy, Cincinnati: I am much interested in Dr Thompson's paper because it exactly confirms my views in reference to the application of remedies to these diseased surfaces. Fourteen years ago, by accident, I discovered that anesthesia by ether in a patient suffering with a chronic bronchitis, upon whom I made a section, produced a cure of the bronchitis by the time that she recovered

from the section. From that time on I have continued to watch the results in such cases. Four years ago I read a paper before the American Gynecological Society on the subject of using ether by preference for surgical anesthesia, in cases of bronchial disease. Because of my experience along this line, I have tried inhalations of ether vapor as a remedy in cases of subacute bronchitis with excellent results, and others who have tried this remedy in such cases have reported to me their results, cures taking place in some instances as if by magic.

Since that time I have seen over and over again the good results of this practice. That if you have a case of bronchial disease and are somewhat skeptical as to the effect of the ether, and think you should use chloroform, these are the cases in which to select ether. Let your patient inhale it very cautiously at the start, so that the cough spoken of by the last speaker may be avoided. Even remove the cone momentarily for fresh air should cough annoy. The ether vapor coming into contact with the inflamed mucous membrane has exactly the same influence as applied by Dr Thompson. I want to commend to you this treatment, and if you have a case upon which you hesitate to operate for the reason spoken of above, if you give them ether you will be perfectly safe, and in the bargain the bronchial trouble will probably be cured. In these cases, especially those of chronic character, I am of the opinion that my method of administration is important. My cone, made of paper and muslin, into which abundance of absorbant cotton is placed, receives such abundance of ether at the start that unless the operation exceeds 45 minutes in duration, no ether is added; the cone in the meantime is not removed from face. Thus during the last 20 minutes of the operation the patient inhales considerable quantities of carbonic-dioxid more soothing to the bronchi and the alveoli than would be unmixed ether. The over saturation of the tissues of the body by ether is also thus avoided.

Dr Wm. W. Glenn, Hillsboro: I would like to ask the writer of the paper, if the camphor and menthol solution acts as an antiseptic sufficiently strong to kill the streptococcus and staphylococcus germs which produce the bronchitis, especially in tuberculosis, tuberculosis being a general infection and the bronchitis resulting from the infection caused by the germs above mentioned? I am very much interested

in these marvelous results. Does this injection of 5 grains to the ounce of menthol and camphor cure the bronchitis, and does it destroy the tubercle bacillus? Does it also destroy the other germs mentioned? What is the marvelous effect of the injection?

Dr John A. Thompson, Cincinnati, closing Discussion: Intratracheal injections can be given without the use of the laryngoscope, but I use it because I like to see the condition of the membranes of the larynx and upper part of the trachea at the time of giving the injections. The condition in these parts is a guide as to what is going on lower down in the bronchi, and thus I am enabled to make a choice of the solution which is best to be used in the treatment of the condition found.

As to the action of the drugs on the bacilli in the lungs, I made no claim for any destructive action on the bacilli of tuberculosis by these drugs. If you will recall the pathology of the tubercular process you will know that the bacilli are found deep in the connective tissue, and not superficially, so that no injection will have any direct action on the tubercle bacillus. In pulmonary tuberculosis the chief benefit of the injection is on the secondary infection, and in curing the bronchitis which is present in these cases. I think none of the writers on this subject claim any direct action on the tubercle bacillus in the lungs. The effect of the injections on the pneumococci and on other germs found in connection with diseased conditions of the lungs and bronchi has been demonstrated time and time again to me by microscopic examinations of the sputum. As soon as the injections are given the number and virulence of the germs in the expectoration diminish as if by magic.

The Relative Value of Diagnosis

BY F. C. GRAY, M. D., DAYTON

That a diagnosis in a given case is always a matter of importance, having immeasurable value in a relative sense, is accepted without cavil. The only excuse for this paper is to accentuate its importance. Intelligent therapeusis and likely prognosis are its dependents. By likely prognosis is meant a result most likely to obtain. It should not be for-

gotten that not infrequently physicians prescribe the limit of life, only to learn that their unqualified pronunciation of doom has proven a discredit to them and their profession, while charlatans and charlatanism have profited by an unqualified decision. It is certainly satisfactory to be able to make a diagnosis, and just as unsatisfactory not to be able to do it.

While diagnosis is of relative value there cannot be a relative diagnosis, it is or it is not made. In the realm of pathology the period of the guesser is fast disappearing. In proportion to the guessing will be the disaster. Fallibility is omnipresent, all men are fallible. Were this not true no appeal need be made, no desire need exist for greater ability to diagnose disease. A failure to diagnose should be a matter of regret, if not a matter of humility. It is not to be presumed that a physician will be at all times and in all instances right in his discrimination and conclusion. All men make mistakes, and if they did not they would not be men; yet a physician's success as a physician cannot be said to be due to inexcusable mistakes.

The relative value of diagnosis depends on the fewest mistakes possible, and while it is true that a physician has not at all times and under all circumstances the same acuity of vision, intellectual might, power of recall of symptom-group, ability to compare and contrast, yet his purpose should be to perfect himself in these things so far as it is within his power.

Again, a man is not alike capable each day; if he were it would imply such perfect human balance that perturbation and disturbed equilibration would be unknown. All nature has its undulations. Why should man be exempt and stand for constancy? Yet the more inconstant he is as a diagnostician, the more lamentable becomes the fact when applied to him as a physician. Our German brethren have been accused of being sticklers for diagnosis and of being indifferent to therapeutics, their interest in their patients terminating with diagnosis. Whether true or not,

their remarked attitude concerning diagnosis deserves as strong commendation as their accused interest in therapeusis merits condemnation. Certainly all our efforts should be for the making of good for our patients.

Second only to prevention of disease is its early recognition. It is agreeable to note that there is especially manifest in the medical literature of the last few years a disposition to accord to diagnosis its proper value. A plea touching almost all diseases is made for their early recognition on which so often depends success in treatment.

As evidence of the accepted relative importance of diagnosis it is pretty generally believed, "That in the realm of practical clinical medicine there is no one feature that gives strength to the art and science like that of making a diagnosis. As a general proposition it may be said that prompt, accurate diagnosis is the most difficult and, at the same time, the most important thing in medicine or surgery."

The result of applied means in diagnosis is scarcely less than wonderful, and certainly of undeterminable value. For instance, we will consider tuberculosis; the hectic flush, recurrent chills, pronounced emaciation, quantities of pus and cadaveric anemia, are no longer necessary to diagnosis. Thanks to science, a physician has the resources by which he can diagnose tuberculosis even previous to one of the mothers of Israel.

Tissue disorganization, as demonstrable by physical examination, the presence of bacilli-bearing expectoration, are not essential to diagnosis, as it may and ought to be recognized in their absence by the no doubt harmless tuberculin injection. It is believed by most physicians that promptness of diagnosis in tuberculosis very largely determines the prognosis.

Dr W. J. Brooks, who believes in the Virchow distinction of phthisis and tuberculosis, *viz.*, that phthisis is tuberculosis plus septicemia due to pyogenic superinfection, writes: "While tuberculosis, as well as many cases of

phthisis, is eminently curable, early diagnosis is of vital importance. Successful treatment must depend upon measures taken before the lungs are extensively involved, and it goes without saying that if tuberculosis was generally diagnosticated there would be practically no mortality."

We are aware that what promise of cure there is in malignant diseases depends on early diagnosis, and it is deplorable that still many cases are not recognized until it is too late for relief.

Surely rapid strides have been made in diagnosis in medicine and are largely due to the development of the microscope, as a result of which development "almost every disease has been made to come forth and stand in the brilliant sun-light of scientific research." It has enabled investigators to develop anatomy, physiology, pathology and bacteriology, a working knowledge of which furnish us aids in diagnosis which range from absolute to less than absolute aids touching most all diseases.

Besides the many pathognomonic bacteria, how invaluable is the plasmodium of Laveran in determining the presence of malaria, and how much less excuse there is for the existence of low fevers and how less a scape-goat for unrecognized conditions in malaria. Thus another idol is broken, and its idolized companions, neurasthenia, and the lithemic or the uric-acid group, as causes of the not well-understood maladies of the human family, are but awaiting the same oblivious fling.

Of decided value are the Widal reaction in typhoid fever and a high-count leukocytosis in the process of pus development.

Surgical diagnosis has not been as rapidly developed as medical, yet it is being constantly improved, and surgeons are pleading for early recognition of cases that are to be relieved by surgery. They demand of the physician early diagnosis in appendicitis, peritonitis, ectopic pregnancy, intestinal obstruction and perforation, malignant conditions, pelvic suppurative inflammations, etc., claiming

in most instances that the symptom-groups are sufficiently classic to be recognized.

It is not strange that they should dread local disorganizations and constitutional infections that destroy life and discredit operative interference.

To nature as a conservator of life we pay obeisance, and humbly acknowledge our gratitude for her oft-times charitable preservation, yet many times the destructive processes of disease will not pause while a physician fails to recognize the condition, and consumes time in waiting and hoping, he knows not why, for improvement. However, it is understood that in some instances in the absence of indications for immediate interference, it is expedient to allow time to develop the case and make a diagnosis comparatively easily arrived at.

En passant it might be remarked that while exploratory incisions are, in not a few instances, necessary for diagnosis, and while, as a rule, they may be made with impunity, the tendency to treat hidden pathology indifferently and depend on exploratory surgery for a diagnosis should be deprecated, as it does not conserve to diagnostic ability, and is not always best for the patient.

Is it not evident that the most essential thing in the successful treatment of diseases is diagnosis, and is it not true that the physician who is awake to the best interests of his patients, his profession and himself, will not fail to appreciate the value of the new methods, as well as their limitations? It can be only by the diligent use of all the diagnostic resources at our command that we can hope for the development of faculties which make for that intuitive ability which is the art in its perfection.

Better things are expected of a physician than to treat a patient for a diseased stomach, whose stomach disturbance is incident to a nephritis or to the influence of hardened wax on the tympanic branch of the pneumogastric nerve; a renal congestion which runs away when pursued by dig-

italin for Bright's disease; an appendicitis for bilious colic; a cord sclerosis or coxalgia for rheumatism.

More complimentary is it to him as a diagnostician when he is not deluded by a false sense of security, and he insists on the why and the wherefore when he sees in a subnormal condition a pretubercular or a precancerous state, and recognizes in lower-lid edema a symptom which may precede an albuminuria or a cardiovascular alteration.

The physician who by virtue of popularity, from any reason, is so busy in practice that he cannot give time and attention sufficient to determine the pathology of the disease of his patients should be generous and seek the assistance of his capable brethren, or accept less business and insist on more respectable fees, thereby being equally profitable to himself, and much to the advantage of his patients.

The physician that can in a large measure diagnose diseases is the man in his profession that is justly preeminent and commands admiration, and this is as it should be, as this enviable altitude is only attained by that industry which knows no tire, and that interest which knows no abatement.

The Status of Psychologic Medicine

BY CHARLES S. McDOUGALL, ATHENS

Although insanity was recognized as a morbid condition by the oldest known civilized people, scientific alienism is a comparatively new department of medicine. From the beginning of the historic period of mankind to near the close of the eighteenth century insanity was attributed to the malignancy of Satin and the poor bedeviled lunatic was treated as an outcast, imprisoned, tortured, and punished. The theory of spiritual obsession and possession was thought infallible and not questioned until recently, and when Dr Gall began to found his so-called science of phrenology, the first attempt to study the relations of body and mind, though in the closing decade of the eighteenth century, the

questions raised were regarded as a presumption upon the religious dogmas of the times, and he was silenced as a public lecturer by the Austrian Government.

Coincident with this initiatory attempt to study mind, two independent movements for reform in the care and treatment of the insane were inaugurated, that of Dr Pinel in abolishing the dungeons and chains at Paris Hospital, (Bicetre), and William Tuke in founding the York retreat —a private institution in which humanity ruled.

Though successful and enthusiastically received by the civilized world, these two institutions with Salpetriere, where Pinel introduced his ideas of reform two years later, stood alone in their humanity, for humanity had not progressed sufficiently to encourage its application to the madman, and it required more than 40 years of the combined and successive efforts of the students, followers and emulators of Tuke and Pinel to overcome the wretched condition into which the insane had been plunged and maintained by ancestrial ignorance.

Progressive movements respecting the insane up to the middle of the nineteenth century had been mainly directed to their physical welfare. In 1855 Herbert Spencer, who as a writer shed more imperishable luster upon the intellect of the century than any other man, published his Principles of Psychology which was founded upon the doctrine of evolution, the basis and guide in all human affairs and the master-key to all biologic problems. It did not redound, however, to the immediate advance of alienism, for though the necessity of knowing the normal to understand the disorder of a function was not questioned in the other departments, in psychologic medicine it was not only thought unnecessary, but openly scoffed at and derided, and the absence of advance in this department, in contrast to the enormous strides made in the other departments of medicines, would seem due to this fact alone, and since Charles Mercier began to urge the correlated study of the evolution of mind and the nervous system, psychologic medicine has

advanced from a chaotic state to a scientifically founded and clearly defined department of medicine. Though like previous progressive movements in this department, Mercier's suggestion was at first unheeded, and for 10 years he was "as the voice of one crying in the wilderness," but after the publication in 1888 of his work on the Nervous System and the Mind, his views attracted the attention of his associates in London, and were adopted by them. His views being an analysis of the normal states and processes, the disorder of which constitutes insanity, his work published two years later on Sanity and Insanity was accepted as a material advance in the knowledge of insanity. Previous to the publication of Sanity and Insanity by Mercier, insanity had been dealt with as a disorder purely of the mind, but it having been determined scientifically that the states and processes of consciousness invariably accompany the states and processes of the matter which compose the superior portions of the nervous system, and though the world of consciousness is entirely separate and distinct from the world of matter, no condition of consciousness can occur without the occurrence of some corresponding condition in the higher nerve regions, nor can any change take place in these higher nerve regions, without the accompaniment of a mental state or process; neither can there be disorder of one without disorder of the other; and in insanity there is always a disorder of mind and there is also disorder of the highest nerve arrangements; and as these highest nerve regions actuate conduct when disordered, as in insanity, then conduct must be disordered; and, in fact, conduct is the most important of all the factors that the alienist has to consider, for however disordered one's mind may be, the question of his sanity does not arise until evidenced by some overt act, and upon these facts Mercier says insanity is disorder of the highest nerve arrangements, disorder of conduct and disorder of consciousness, and in every case disorder of consciousness includes disorder of thought and feeling, of self-consciousness and of consciousness of the relations of

self to surroundings. In dealing with the mind and its disorders in connection with nervous activity and disorder of the nervous centers, Mercier lays claim to few newly-observed facts, but to organizing into knowledge those already possessed, and if the doctrine of evolution is correct and applicable to psychology as applied to all other biologic questions, then the stupendous biologic discoveries of the last half century, adapted as they have been by Mercier to psychologic medicine, has placed it within the pale of science.

The works of Mercier, though little known by the profession generally, and seldom referred to by specialists in this country, have with most European alienists superceded all others. His mode of studying mind, his definition, and classification of the forms and varieties of insanity, with his distinction of forms and varieties, are not only lucid and practical, but are regarded as scientific by the leading alienists of the world, as evidenced by many, and most notably the embodiment of his views in Hack Tuke's last and perhaps greatest work, Dictionary of Psychology Medicine.

The apology I have to offer for consuming the time with a subject seldom considered at a meeting of the general profession is the hope that I may be able to impress some with the belief that our knowledge of insanity is more than is popularly believed, a farago of meaningless words. The process of establishing relations in the organism in correspondence with relations in the environment has been worked out with such analytic skill that it is possible to say how and to what extent mind is affected, and the nervous mechanism and classification of conduct so scientifically established that by our knowledge of conduct, which scientifically considered is the active adjustment of self to circumstances (the pursuit of ends) and is in fact the only means we have to judge of one's intelligence, their insanity or sanity, has made it possible to say what kind of disordered conduct is necessary to constitute insanity and for a natural and intelligible classification of the undeveloped, as well as the forms of insanity.

DISCUSSION

Dr John H. McCassey, Dayton: Along the line of treatment outlined by the essayist I might relate an experience or two of mine while I was superintendent of the State Insane Asylum at Topeka, Kansas, that is, treatment by suggestion. These wrong ideas have gotten into the mind, and the treatment should consist in getting them out by putting in correct ideas. I found in a number of cases which I treated that the best treatment consisted in argument, simple argument with the patient in regard to their wrong ideas. I found that the more time I could give to a patient in arguing him out of his false ideas, providing he had intelligence enough to understand anything, and which they usually do at first, the quicker and better the results. Of course when the stage of dementia is reached such treatment is out of the question. I had one case of melancholia which came from a county in the western part of the State of Kansas. This patient who was a woman was under the impression that something awful was going to befall her, her husband and her children. In order to carry out this treatment certain conditions are necessary. In the first place the room in which the treatment is given must be of the proper temperature, the windows not opened sufficiently to admit noises, the arguments must be given by someone in whom the patient has confidence, and there must not be more than one or two persons present at that time. I had tried, in the case above referred to, to get the patient to sleep for three or four nights with large doses of chloral and bromide of potassium, but without effect. I decided to try the argumentative plan of treatment and went into the hall with a view of carrying out my idea. A nurse went with me, and when we entered the hall the patient came toward us crying. I took her by the hand and walked into her room. I said, "My dear lady, you are a sick lady, and you have come here to be cured. I am the man who is going to cure you. In your home in Graham County your husband and your children have been out for a ride, it has been snowing, and they have come in and are sitting beside the fire getting warm. You are all getting sleepy and you cannot help it, you must go to sleep." I assured her that all was well and that no evil had befallen her or her family, that she was in the hospital to be cured, and the thing to do was to quiet down, accept my argument that all was well, that after a

nights' sleep she would recover and be able to go to her home before long. She rolled over and went to sleep (this was in the afternoon) and slept until supper time. I had to repeat that argument to her every day for a week and then she began to go to sleep for herself. She got well in four or five months and then went home.

Another case I had was a man from New York who had property out in Kansas. He became melancholic and got ideas into his head that real estate men were after it and had evil designs upon him. I carried out some such treatment as above outlined and the man recovered in a month. I might mention a number of such cases in which I applied this suggestive treatment with the greatest benefit to the patients, all of them recovering and returning home cured.

Dr R. H. Grube, Grape Grove: Science goes before art, and science has been trying for nearly a hundred years to break away from the dualism that has held our minds in bondage through so many ages. We no longer regard mind and matter as separate entities, but as different manifestations of the same entity. Bain has well expressed it by comparing them to the two sides of a coin. This being true, every case of insanity is but the expression of a pathologic change in the brain, and while the pathologists are not always able to find such changes, they are nevertheless there, and the time will come when they will be able to do so, and then we will be able to treat the insane by treating the diseased brain. More than that, I believe the time is coming when much of that which is now regarded as crime will be recognized and treated as the result of brain disease.

I am glad that I heard this paper, and I am glad also to say that I am heartily in accord with the spirit of it, and only regret that it was not much longer.

Dr Charles S. McDougall, Athens, closing Discussion: In my paper I did not intend to deal with the treatment of insanity, but mainly wished to call attention to the fact that scientific alienism has gotten beyond the old notion of insanity being purely a disorder of mind, and for it the credit was largely due Dr Charles Mercier, a protege of Hulings Jackson. His first work, The Nervous System and the Mind, intended as a corrollary and extension of Herbert Spencer's Principles of Psychology, was written after he began his work on Sanity and Insanity. This he deemed

essential, as he found in attempting to formulate the fundamental principles of a science of alienism, that the necessity of interposing a statement of the normal process whose disorder it is that constitutes insanity became so frequent that they destroyed the continuity of his text, consequently he wrote this work (mainly devoted to the association of mind and nervous action) as a foundation for his work on Sanity and Insanity. I think every physician that peruses these works (and I wish every physician in Ohio was familiar with them) would soon learn that the study of insanity has been brought within our comprehension.

Tuke, some years ago, stated in his work on Psychological Medicine, that it was not practical to suggest any definition of insanity free from objection, but in his last work, Dictionary of Psychological Medicine, Mercier's definition of insanity is given without reserve, and his works are commented on as a material advance in our knowledge of insanity.

Years of study and practical experience in the care and treatment of the insane have brought me to believe that alienism has advanced to the point that I am willing to go on record before this State Association as saying that the diagnosis of insanity can be worked out with almost mathematic certainty. Without being able to say why or how, but it is capable of inferential proof that consciousness accompanies only the workings of the higher nervous center and that these centers actuate conduct, and these centers must be disordered to have disordered consciousness and disordered conduct, and in this connection I will say a word or two in reference to treatment by suggestion, an argument as recommended by Dr McCassey. I am inclined to think in the case cited by the Doctor that the ride, the temperature of the room and the environments favorable to the hygiene of sleep had more to do with the production of sleep than did suggestion. You can no more argue an insane man out of his delusions than you can pick up your shadow from the ground and throw it away, and the disordered consciousness will continue until the disordered centers resume their normal condition.

Sporadic Cretinism—with Report of Cases

BY J. P. DeWITT, M. D., CANTON

I wish to give a brief report of three cases of sporadic cretinism, or infantile myxedema occurring in my practice.

Dr Osler reports in the Transactions of the Congress of American Physicians and Surgeons, (Vol. IV.), that he was able to collect 60 cases in this country to May 1, 1897.

Many theories were formerly given as to the pathology and etiology of cretinism, but it is a proven fact that the degree of severity is due to the absence or disturbance of the function of the thyroid gland.

Osler says: "The diagnosis is easy after you have once seen a case or a good photograph of one."

Case I: Casper E., a male, white, American, aged 2 years and 4 months, measures 29½ inches in height, weighs 22½ pounds, and the abdomen measures 19½ inches.

The mother was 38 years old and has always been healthy; the father was 40 years old and has never been sick; the grandparents are living and well, and there is no hereditary disease on either side of the family.

This is the eighth child; the other children are living and well. The labor was normal. The mother has a small goiter which she says appeared after the birth of this child.

The mother noticed that this child from birth was not like the other children, but the attending physician informed her that "it would outgrow it."

On further examination I found the skin all over the body to be thick, swollen, dry, cold, and scaly, and would not pit on pressure. Its color was a pale yellow. The hair was thin, coarse, straight, and brittle. The fontanelles were open. The abdomen was protuberant. The limbs were short and the skin laid in folds, and he made no effort at walking.

His hands and feet were pudgy and undeveloped. The nails were flat and brittle. There were pads of fat above his clavicles. I could not palpate the thyroid gland. The tongue was very large and swollen and protruded somewhat from the mouth (Marcroglossia). The nose was depressed between the eyes, and the nostrils were open. The eyelids and ears were puffy and swollen. His face presented a look of old age with a toad-like appearance.

He had a few teeth in front, but they were ragged and decayed to the gums. There was no perspiration and his mother could not keep him warm, but there was a constant drooling of saliva from his always-open mouth. His neck was short. His appetite was voracious, but all foods had to be put into his mouth, and he showed no desire for certain foods, but would not eat meats. He was usually constipated with occasional attacks of diarrhea.

Cretinism Case I. Casper E., age 2 years, 4 months. Before treatment.

Cretinism Case I. Casper E., age 3 years, 10 months. After 1 year and 6 months treatment with thyroid extract.

His mental condition was undeveloped. He would not notice the other children at play, nor would he make any wants known. He has a peculiar sonorous voice and at night was restless and would creep over the bed, making monotonous noises.

Treatment with thyroid extract, one-half grain given three times a day, was commenced at the age of two years and four months, and the photograph shows him at the age of three years and ten months, or after one and a half year's treatment. Improvement was at once noticeable, the tongue becoming smaller

and the skin moist and warm. He is now a fine healthy appearing boy, 36 inches high. His weight is about 40 pounds. His hair and teeth are fully developed, and his abdomen is natural. He can walk, play, talk, and seems as bright as the other children, and you could not tell from looking at him that he has been a cretin. He is taking about three grains of thyroid extract three times a day at present.

Case II. Agnes H., age 4 years. After 10 days treatment.

Case II. Agnes H. After 8 months treatment with thyroid extract.

The mother has since given birth to a well-developed child weighing about 10 pounds. I arrived about one hour after it was born and found a dead baby; whether it died during labor or was stillborn, I cannot say. She took thyroid extract during her pregnancy.

Case II: Agnes H., white, American, aged 4 years, measured 26 inches in height, the abdomen 18½ inches, and the weight was 19 pounds. The father was 29 years of age; the mother was

28 years of age; both are living and well. There is one sister seven years old who is bright and healthy. The mother's father died of cancer of the stomach. The other grandparents are living and well. This child did not seem to be normal shortly after birth, and several physicians were consulted prior to the time I saw her.

Her mental condition was undeveloped and similar to Case I, although she made some effort at talking and expressed some meager desire for certain foods. Her physical condition in regard to skin, hair, teeth, tongue, nose, mouth and limbs was about the same as the preceding case, and in addition she had a large umbilical hernia and general anasarca. I could not feel the thyroid gland. The mother has had a slight enlargement of her thyroid gland for several years.

The photographs before the treatment do not show her real condition, as she had been given thyroid extract for about ten days before these were taken, and a great deal of the anasarca had disappeared. She was given one-half grain of thyroid extract three times a day at the beginning and is now taking about two grains three times daily. Improvement was manifested almost immediately, and the photograph shows her at the age of four years and eight months, after eight months' treatment; after taking thyroid extract she lost about eight pounds, but now weighs 22 pounds and is 31 inches high, and the abdomen is 17 inches in circumference.

Case III: It was impossible to obtain photographs of this case. The patient is Marion K., male, American, white, aged 7 years. The father is 31 years of age and the mother is 30 years of age, and both are living and healthy. There is one sister 5 years old, who is well developed and very bright. The grandparents are living and well. This is a very mild case, or rather a cretinoid state.

He is a cousin to Case II. The boy has never developed mentally as fully as he has physically. He is a large well-developed boy for his age. His skin was cold, and his tongue was large, which seemed to account for the deep guttural voice.

The anus was open, and there was a prolapse of the rectum. He had no control whatever of his bowels. His prepuce was long, and he urinated the same as when a child, and it was impossible for the mother to teach him these customs.

His height and weight were normal. He developed to a certain degree mentally, but his mother thought he had gone ' ward during the last year. The appetite was normal but !

to be fed most of the time. He would play with certain playthings; others he would not notice.

He knew some of his letters and could count some, but there was a wandering, undeveloped condition of his mind which could not be accounted for, only by the partial function of the thyroid gland.

On his first visit to my office he would not sit in a chair, but kept moving about continually, upsetting bottles, instruments and my inkstand.

He has been taking thyroid extract for four months, and now has full control of his kidneys and bowels; he is developing mentally, and has gone to school the last two months, and has learned his letters; he can draw and write, and seems to be improving.

CHAPTER III--SURGERY

Wound Infection and its Treatment, with Report of Cases

BY SHERMAN LEACH, M. D., COLUMBUS

The title of this paper suggested itself to me as a result of the frequency with which this condition has been encountered during the past year. Wound infection, as its name implies, is a process due to the activity of microorganisms which are capable of developing in living tissue, such as are represented by the pathogenic bacteria. It is not my intention to consider all forms of wound infection, as the title of my paper might imply, but simply that class of wounds most frequently received upon the extremities, and classified as simple, or trivial, in character.

Moreover, I do not wish to include operative wounds which become infected at the time or subsequently, tubercular, or specific infection. That infective wounds do not receive from us the attention which their importance demands is evidenced by the great number of permanent deformities that we daily see on our streets, and not a few cases that result fatally.

For the benefit of the members who do but very little, if any, surgery, and consequently do not keep in close touch with the various forms of pathogenic bacteria, I wish to review, in a measure, the more important cocci of this group. It is the general practician who usually sees these cases while they are in their infancy, so to speak. While there is a large number of virulent cocci, yet in this connection we have to deal more especially with but one or two groups, the staphylococcus and the streptococcus.

In the staphylococcus group is included the *staph*

especial reference to treatment. The time to capture the murderer is before he has made way with the life of the individual.

Don't sit by and see the life of the patient ebbing away, trusting to flax-seed or mush poultices, with aconite or *veratrum viride* internally, but do something to prevent the onslaught of the enemy.

Here, the principle advanced by Ochsner, of Chicago, in his paper before this Society one year ago is of great benefit.

Nevertheless, rest alone has not accomplished the results that I had anticipated. But thorough cleansing with some known antiseptic, incision and drainage, combined with complete rest for both mind and body, have left but little to wish for.

It is this old question of incision and drainage, a relief of tension, a diversion of the lymph stream outward rather than permitting it to flow on in the system, carrying death and destruction before it, that I would call to the attention of the general practician. First, I wish to speak in regard to the incision. If the end of the finger is the point which has received the infection, and you have been fortunate enough to see the case early, whether the streptococci or the staphylococci are present it matters not, you can generally say which coccus is present by the appearance.

If the streptococci is present you will find the red streaks going up the arm, much pain complained of and constitutional disturbance present. Whereas, if the staphylococci is present, the symptoms will be less pronounced.

In either case, cocainize the finger thoroughly. (Here a knowledge of the distribution of the nerve-supply will save the patient much pain.) Do not try to infiltrate the inflamed area, for this is both painful and difficult, but inject the cocain directly into the nerve as it passes down on either side of the base of the finger, much after the method employed in the removal of a toe-nail.

When the finger is no longer sensitive, incise freely,

cleanse thoroughly with some antiseptic, preferably peroxid of hydrogen, as this agent exerts a particularly powerful influence in destroying and in preventing the multiplication of the bacilli. Take for instance a case that has extended far beyond the primary point of infection, in which the muscular aponeuroses have become necrotic, the muscles infiltrated and hardened, and in which one or more sinuses are discharging a seropurulent fluid, and fever has become hectic, parts have become swollen and the function is entirely lost.

Hot poultices have been applied, and iodin has been painted over the parts in the hope of abating the inflammation.

In a case of this type, no amount of rest or application will be of any benefit. Drastic and heroic treatment must be used if you wish to save the life of the patient, much less the limb or part involved. Here is where free incision is necessary, incisions of sufficient extent to allow of the removal of all broken-down tissue. Free hemorrhage usually accompanies this procedure and may call for the application of the elastic ligature, which will make it possible for you to do your work in a much more thorough and satisfactory manner. It is sometimes surprising how extensively the muscular aponeuroses become involved and destroyed in such types of infection.

This is in all probability explained by the fact that the amount of blood-supply to such structures is very limited; consequently they are the first to suffer. However, all structures are more or less involved. The joints are frequently attacked as in one of the cases which will follow. In one, however, the knee-joint escaped a most violent attack, which extended above and below, resulting in great loss of substance, but which was resisted by the joint capsule. Striped muscular fibers seem to escape the infection, by the fact that as yet no lymphatic vessels have been found in them. In Dr Ochsner's paper great stress was laid upon rest, and in the cases reported his results were certain

very gratifying. Since his paper was presented I have endeavored in like cases to get the most perfect rest possible, but have not succeeded in obtaining such brilliant results as Ochsner. When I made ample incision, followed by thorough cleansing with peroxid, together with absolute rest for the part, my results have been all that I could ask. In but one case has the limb or function of the part been sacrificed. I do not believe that hot poultices have any place in this form of surgery, and the application of the preparations called antiphlogistin, etc., are worse than useless.

Case I: H. G., 19 years of age, was referred to me by Dr Watt, of Delaware. His occupation is that of a student. His father died of tuberculosis. The cause of his mother's death is unknown; one brother and one sister are living and both are healthy.

The patient suffered from the usual diseases of childhood. Some years ago he had typhoid fever. Prior to his present illness his health was perfect. On February 15, 1903, while engaged in some work which necessitated the use of a drawing-knife, he produced an incised wound about one inch long, and one-fourth inch deep on the inner side of the left thigh, just above the knee. A chew of tobacco was bound upon the wound as a temporary dressing. It was very painful that night, and the next day he could scarcely walk. A physician was sent for at this time, who coapted the wound with a stitch or two.

One week later the boy began to feel weak and faint and the limb began to swell. On February 27 he experienced a pronounced chill which was followed by a high temperature and a profuse sweat. The chilly sensations and sweating continued and the pain and swelling increased. The leg was then poulticed and painted with iodin. There was no diarrhea and no vomiting, but he was nauseated, and took little, if any, nourishment. On April 14 his physician made an opening above and below the knee, giving exit to a quantity of pus.

Hot poultices were continued, but his condition did not improve and he was sent to the Protestant Hospital on April 21.

When he entered the Hospital his temperature was 100°; his pulse was 132 per minute, small and weak. He was

extremely emaciated and markedly anemic in appearance; the tongue was coated, very dry, and cracked; the bowels were constipated and he had no appetite. His entire limb was boggy and swollen to twice its normal size, and very painful and tender upon palpation. The knee-joint was apparently ankylosed, with several sinuses discharging pus, above and below the same. His countenance and facial expressions were anxious; in fact, his general appearance led me to believe that he would not recover. On the afternoon of the same day that he entered the Hospital he was removed to the operating-room, put to sleep with anesthol, and an incision about ten inches long was made along the inner side of leg below the knee. A like incision was made above the knee to the outer side of the thigh; in addition, two smaller counter openings were made. These incisions enabled me to remove with a curet all of the necrotic tissue, which consisted principally of the aponeurotic coverings of the various muscles, together with the connective tissue and deep fascia.

All the muscles of the leg and lower part of the thigh were separated by the diseased process. Fortunately, however, the capsule of the knee-joint had not suffered.

The venous hemorrhage was so profuse that it became necessary to apply the elastic ligature during the latter part of the operation, as the loss of even a small amount of blood was undesirable.

After wiping out the various muscular interstices with gauze, the wound was flushed with peroxid of hydrogen, and again dried and the wound packed with gauze, which had previously been soaked with iodoform glycerin emulsion; the entire limb was enveloped in cotton batting, and a firm roller-bandage was applied. He was then put to bed, and given a saline infusion of 1000 cc. He rallied nicely and has had an uneventful recovery. The first dressing was not changed until the fourth day. After that, the wound was dressed daily. He was discharged from the Hospital on May 29 cured, the limb having regained its normal function and the wound entirely healed. Streptococci were found in abundance in the pus.

Case II: Mr C. A., aged 18 years, was referred to me by Dr E. B. Mead, of Sedalia. He is white, of good family and of good habits. On January 3, 1903, he cut the ring-finger of his left hand very slightly on a barbed wire.

On January 8, while working at his father's saw-mill

he was struck by a lever on the left shoulder, which, however, occasioned no pain or inconvenience. He continued to perform his daily work up to January 11. On this date he suffered some pain in his injured finger, together with a tendency of the flexor tendons to contract, as in the act of closing the hand. During the night the pain in the finger and the hand increased, and extended up the arm to the axilla and shoulder. On January 12 Dr Mead was called, and found the arm swollen and tender, with axillary glands involved and the structures about the shoulder and upper part of chest infiltrated. Hot fomentations were ordered to relieve the pain, and the young man was treated upon general principles. He had frequent chills, followed by fever and profuse sweats.

On February 10 Dr Mead detected fluctuation in the axilla and opened the same, evacuating quite an amount of pus. This gave only temporary relief. The process continued to diffuse itself over the anterior region of the upper part of the chest, and upon the neck and shoulder. As his general health was failing rapidly and the local condition still increasing, he was sent to the Protestant Hospital on March 15. When admitted to the Hospital this boy was in a very deplorable condition. He was extremely pale and anemic, his temperature was 103° and his pulse was 140 per minute. He was decidedly emaciated, his appetite was gone and he suffered from chills and sweats. An examination of the limb at this time showed no evidence of the primary point of infection, with the exception of a small cicatrix upon the finger. The fore-arm was swollen and edematous; the arm, shoulder, axillary contents, all the muscles of the upper left side of the chest and the neck were brawny and hard; at a point over the center of the sternum was a large, fluctuating tumor; over the side of the chest-wall and in the axilla were several sinuses discharging a seropurulent fluid.

Motion at the shoulder-joint was lost. Pain was caused by any movement of the limb. The respiratory movements were both difficult and painful. At this time an incision was made in the tumor over the center of the sternum and a large quantity of pus was evacuated. This relieved the young man's pain in a very marked degree, and permitted us to build up his strength for the more radical operation, which was made on March 19.

In this case an incision similar to the one advised by

Halstead for the removal of the breast in carcinoma was made, through which I removed all the diseased tissue. The greater part of the pectoralis major muscle, together with all the glands in the axilla and above the clavicle, were completely removed. As in Case I the shoulder-joint had resisted the infection, yet it had passed entirely around the same. The wound was treated in the same manner as Case I. The patient was discharged cured on April 20, with function of the arm entirely restored and the wound completely healed. Streptococci were found in abundance in the pus.

Case III: W. R., aged 66 years, received a slight punctured wound on the second finger of the right hand while moving an ice-cream freezer. The immediate symptoms were slight redness and some swelling at the point of infliction, both of which the patient stated subsided promptly. On the evening of January 3 the family physician, Dr G. W. Lewis, of Mt. Sterling, was called. The Doctor states that he found the patient with a temperature of 102°, an area of redness and swelling at the middle of the fore-arm on the radial side, a distance of 10 or 12 inches from the primary wound, the intervening structures showing no signs of involvement. A few drops of pus were found at the site of the original injury. The inflammation continued to extend, until the entire arm was involved. On January 27 I was called to amputate the arm. At this time the entire arm, to a point near the shoulder, was necrotic; the skin, together with all the connective tissues and muscular aponeuroses, had practically sloughed away, leaving the individual muscles entirely exposed, which, as well as the bones, seemed to have escaped the violent infection.

An amputation was the only thing that offered any chance for the relief of the condition; and this, in his septic condition, was looked upon as almost sure to prove fatal. Nevertheless it was done, the arm being amputated as high up as possible without disarticulating. Some improvement in his general condition resulted; but the infection had passed over to the chest-wall, and extended posteriorly beneath the scapula down the side of the chest almost to the margin of the ribs. Later, however, the parts showed some evidence of healing over, and prior to his death, which occurred on Easter Sunday, the wounds were progressing nicely.

The immediate cause of death was exhaustion from an attack of diarrhea, which was doubtless septic in character. No examination of the pus was made in this case, but I am quite positive streptococci were present.

Case IV: J. B., aged 25 years, his occupation being that of a waiter, on May 5, 1903, while engaged in his usual work, scratched the end of his left thumb. It was so slight an injury that he thought nothing of it at that time. That night he suffered an intense, throbbing pain in his thumb, and on the following morning had a pronounced chill, followed by a high temperature. I was called to see the man and found the thumb red and swollen, with one or two red streaks extending up the fore-arm. His countenance plainly indicated the intense suffering which he had experienced during the night. His thumb was immediately cocainized, and three linear incisions were made through all of the structures, including the periosteum.

A drop or two of pus was found; the wound was then flushed thoroughly with peroxid of hydrogen, a few strands of gauze were placed in the incisions for drainage, and the entire hand enveloped with gauze, which had been thoroughly soaked with alcohol and glycerin. He was directed to keep the dressings moist with the same fluid. The immediate result of the operation was a complete subsidence of all the pain and constitutional disturbance. The thumb was redressed upon the third day, and as the wound looked perfectly healthy, and no pain being present, he was discharged. He returned to his work in one week from the day he received the infection.

Many like cases could be cited showing the different character and grades of infection, but the above are sufficient to demonstrate what early incision and drainage will accomplish.

To sum up the treatment, then, of wound infection, I would mention, (1) incision, extensive enough to divert and drain the lymphatics to relieve tension and the engorged blood-vessels; (2) thorough cleansing; (3) application of dressings, moistened with equal parts of alcohol and glycerin; and (4) complete rest.

DISCUSSION

Dr George E. Malsbary, Cincinnati: The essayist referred to the use of peroxid of hydrogen as an antiseptic. Peroxid of hydrogen may be regarded as an antiseptic in the broad interpretation of that term, inasmuch as it does facilitate drainage and thereby opposes the septic process. Possibly the antiseptic most frequently and generally employed by the surgeons at the present time in the treatment of infected cases is bichlorid of mercury. Compresses of bichlorid of mercury, although sanctioned by usage and much empyric evidence in their favor, do not appeal to one as rational. It is difficult to comprehend how the solution could penetrate the skin in such quantities as to prove antiseptic, when the infection is located, for instance, along the lymphatics, be they deep or superficial. In some cases I have obtained good results by the local application of formaldehyd. This remedy would appear more rational, and I have found it more efficacious than the bichlorid solution.

Dr F. B. Entrikin, Findlay: I have had considerable experience with these small wound infections and at one time I had quite a number of them on hand at once. My treatment has been to make a free incision when necessary, and very often I wash out the parts with peroxid of hydrogen. I envelope the parts in cotton and keep it soaked with a hydronapthol solution (hot) and drain off into a bucket. I also administer quinin and iron internally. What has struck me so forcibly in these infections is the small wound which starts up the trouble. In one of my cases a lady was doing a little work in the garden and she scratched her finger. Another was doing some work with lumber and received a slight wound. In another case (the patient dying) which I saw in the afternoon at Bluffton the whole arm was edematous up into the chest. This occurred from a splinter flying and scratching the finger.

Another thing which I have noticed and that is so many of these patients will put chewing tobacco on the wound. I recall a boy who had a slight wound on the hand and he came to me with his hand wrapped up with a big chew of tobacco. I had to make several incisions to let out the pus which had travelled up past the wrist. It is these small wounds which seem to give the most trouble and which at first do not receive the proper attention.

Dr J. A. Kimmell, Findlay: It seems to me that perhaps there will not be a paper read at this meeting which will be of any more importance to the general practician and also to the general surgeon than the one which we have just heard. Every practician of medicine runs across these infected wounds and it is these small wounds that produce such serious results. The laity as has been said too often forestall our good works by using various applications, such as tobacco, rotten apple or anything else that they can think of to apply, something which sets up an infection, and it is almost impossible to get them to do anything else. I think that we may take a little courage for I have noticed recently that patients will come to the physician with these little wounds more than formerly, and they will tell you that they think it pays to have the thing attended to right in the first place. If we will treat these wounds antiseptically from the beginning we will have no trouble with them. There is a remedy which I have used for 30 years, and it is an old one, *viz.*, aromatic sulphuric acid given internally in those cases in which you are likely to have sepsis, and this has done better service than any other one remedy which I have tried.

I have been much pleased with the paper because I felt that it would certainly be of immense benefit to every man in the house, as it would at least call his attention to these matters and have him practice them.

Dr William D. Stewart, Toledo: Along the line of expression of the gentleman who discussed the paper just preceding me, we will certainly continue to have serious infections from slight wounds so long as the laity remain uninstructed in regard to them. They will neglect them and will not take the time from their work to go to a physician to have what they consider a slight injury attended to. But when they are once instructed in this matter the case will be very different. It is necessary to inform the public of the risk which they run, not only from the local infection, but also of the menace to life, in these small infected wounds. It is a matter of economy as well as one of health to patients to have proper attention given these injuries. Only the last four or five days I had an experience with cellulitis coming from a trivial wound on the dorsum of the foot which was caused by a piece of iron dropping on the foot. The patient was a Hungarian and ignorant of what might come of it. He thought he would continue his work not thinking it of

sufficient importance to stop his work and have it dressed. Instead of losing a few hours' time in the first place to have it properly attended to he will lose two or three weeks. This and many other instances which I might mention show the necessity of attending to these wounds immediately, and not waiting until more serious results develop.

Dr J. F. Baldwin, Columbus: I have been very much interested in this paper. Those of us who are somewhat gray-haired and graduates from Jefferson, are a little bit more interested than others, because, omitting all scientific knowledge of the germs present, the treatment advocated is precisely that which we had drummed into us at college by old Professor Pancoast, *viz.*, to use what he called the "anti-phlogistic touch," which he demonstrated over and over again in his clinics, the free opening up of the infected tissue. We did not know anything of cocci then, and never dreamed of them, but the treatment was just the same as the essayist has advocated today.

It is questionable how much good is accomplished by any applications which are made after the free incision. In only one sense is the peroxid of hydrogen an antiseptic. One of our New York surgeons, as you all know, is very fond of using pure carbolic acid in these cases, followed by alcohol. This is certainly antiseptic treatment, but the mischief in these cases is not going on in the parts which you reach with your antiseptics, but in the deeper tissues. Of course we relieve the tissues locally by free incision and drainage, but after that we must trust to the powers of nature to prevent further advance of the germs which we cannot reach; and nature in these cases usually comes to our relief and accomplishes all that we could wish.

I wish that we could condemn effectively the dilly-dallying which we so often see, where pus has already formed, through the use of so-called poultices. When called to see these cases we usually find that poultices have been applied for a number of days, these poultices being of cranberry, slippery elm, flaxseed, bread and water, and what not. If they accomplish any good I do not know what it is. There is another preparation against which I think we should lift our voices, and which I know is used quite freely, at least in the central part of Ohio, I allude to a preparation known as antiphlogistin. It has all the disadvantages of any other poultice, and is utterly worthless.

Dr B. Merrill Ricketts, Cincinnati: I do not think that the application of dressing amounts to anything. The moment we apply vaccine virus beneath the skin we have vaccination, and the moment that you are punctured with an infected stick, needle or knife you are infected if you are going to be infected, and it does not make any difference what kind of dressing you put over the wound. Peroxid of hydrogen, formaldeyhd or anything else, does not mitigate the infection which has taken place. If it is in the finger, you might amputate it, but you would have infection just the same, that is if it is going to take place.

Dr J. W. Costolo, Sidney: The last gentleman may be right, but we know that the majority of cases do not suffer from general sepsis after free incision. I think I would consider the life of a patient much safer under this treatment than if left alone until the last minute before amputating a finger, for instance, as advocated by the last speaker.

Dr Thad. A. Reamy, Cincinnati: While sitting here listening to the discussion I have been wondering why the physician does not instruct the laity in reference to these wounds so that they may prevent disastrous results. That would be a far more feasible plan and far more easily accomplished. I could not agree with my friend that every man who has a superficial wound is infected but he is liable to be so.

In 80 or 90% of these cases of superficial injury, contusion or incision, if the laity had been instructed to keep in the house a solution of bichlorid of mercury, 1-1000, or tablets, with instructions for making the solution, and to apply this on the wound and keep it tied up, there would be no need for the attention of the surgeon, or any infection. It is the duty of the physician to tell his patients how to make and apply some such solution, tell them to mark it "poison" and to keep it away from the children. Tie the wounds up with this and let the injured party go about his business. Under no circumstances redress the wound under five to six days from time of injury. Let them put on clean overdressing if appearances demand it. With such practice the *lockjaw* mortality even from wounds of toy pistols will be much lessened. Hydrophobia (tetanus often) will also grow scarcer.

Dr F. F. Lawrence, Columbus: It is probably true that while every member of this Association believes antisepsis to be good, he also believes asepsis to be better. Wound infection, be the wound large or small, is in *almost* every case the result of neglected asepsis. One method of infection sometimes overlooked is that which occurs in the changing of the dressings of the wound. It is not an uncommon thing to notice a nurse (and I am sorry to say sometimes a physician) handling soiled dressings with the fingers and then handling the clean dressings which are to replace those removed. They may possibly wash their fingers in bichlorid solution and imagine they are safe from infection. I wish to state here in reference to keeping bichlorid solution in the house as advocated by my distinguished friend from Cincinnati. This practice is one which seems to me to be fraught with as much danger as it contains possibility of good. Particularly would this be true should there be children about the house or in a household whose members would be careless in using it. Corrosive sublimate is a dangerous element to be placed in the hands of those not thoroughly competent to use it. Again I am not sure but much harm might result from a false sense of security gained by its use, however inefficiently.

It seems to me the points the essayist aimed to emphasize were, first, avoid infection of the wound; second, keep the wound from becoming infected during its aftercare; third, if we have an infected wound, promptly provide free drainage.

Dr Sherman Leach, Columbus, closing discussion: In closing I simply wish to thank the gentlemen for the discussion of my paper. I have been very much interested in the different opinions which have been advanced by the various speakers. I wish to impress upon you the importance of drainage in infected wounds; first, external drainage of the wound should be constantly kept up, and also internal drainage, giving patients free catharsis during the whole sickness, and thus unload the circulation. I also do another kind of drainage, eternal drainage. Thus the three kinds of drainage used are external, internal, and eternal drainage.

Ureterointestinal Anastomosis, with Report of a Case

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Urinary and intestinal anastomosis is a subject which has interested the medical profession for over half a century. It has long been known that in certain animals, notably birds and reptiles, that the urinary and intestinal tracts have a common exit. It has also long been known, through clinical observations on congenital malformations of the rectum and bladder, and in cases of rectovesical fistula after lithotomy operations and through experiment, that the rectum acts as a suitable urinary receptacle and will tolerate and retain the urine, after a time, almost as well as the natural urinary bladder itself.

There are a certain class of cases, such as extrophy of the bladder, tuberculosis and cancer of the bladder, chronic cystitis, prostatic hypertrophies and injuries of the bladder and ureters, in which conditions and anastomosis between the urinary and intestinal tracts, if successfully accomplished, would be logical and curative. Since John Simon, in 1851, first recommended and performed the operation, much knowledge has been gained from the experimental and practical work which has been done to accomplish the successful anastomosis.

The anastomosis consists mainly in the endeavor to implant the ureters into the intestinal canal, although a method of vesicorectal anastomosis has been recommended. The earlier experiments and operations were on the whole unsuccessful and disappointing and for a time the entire procedure was abandoned.

The principal and main danger of the operation is that of ascending renal infection. Earlier experiments as well as the operations in the human being resulted in pyelonephritis, stricture of the ureter, complete obliteration of the

kidney, from pulling out of the ureters, giving way of sutures and from general peritonitis. Not until the science of bacteriology and the laws of infection were understood was it clearly demonstrated why the operation was attended with such dire results. It was then appreciated that, to implant a normally aseptic ureter into the normally septic intestine would almost invariably be followed by ascending infection with its consequent pyleonephritis resulting in death.

Efforts to devise some method of preventing this ascending infection were made, and after considerable experimentation with various ingenious methods of ureter suturing, all of which proved useless, Tuffier in 1890 advised the preservation of the normal ureteral orifices in making the anastomosis, thereby preventing ascending infection. In 1894 Maydl, by successfullv suturing the entire trigonum with the ureters attached into the sigmoid flexure of the colon, carried Tuffier's idea into effect and thereby placed the operation upon a sound basis. To this operation Peterson in 1901 gave the name ureterotrigonointestinal anastomosis.

It is of interest in this connection to state that the ureters have also been implanted into other structures of the body after injury. They have been implanted into the skin, urethra, vagina, all of which, from the standpoint of infection are less dangerous, but from the inconveniences they produce, are incomplete operations at best, and are not to be recommended.

The operations from urinary and intestinal anastomosis may be divided into (I) ureterointestinal anastomosis; (II) ureterotrigonointestinal anastomosis; (III) vesicorectal anastomosis.

I. URETEROINTESTINAL ANASTOMOSIS

The earlier operations of ureteral implantation were all of this kind. It consisted in the endeavor to implant the ureters into the intestine anywhere in their course between the kidneys and bladder.

In 1851 John Simon first performed ureterointestinal anastomosis in man. Simon's operation was made on a 13-year-old boy, for exstrophy. The anastomosis was accomplished by a crude yet ingenious method which consisted principally in passing elastic ligatures from the ureters into the rectum, and allowing them to slough through; the patient lived about one year after the operation. The post-mortem examination revealed the ureters blocked with calculi, together with serious disease of the ureters and kidneys.

In 1853 Roux, of Toulon, independently of Simon, advocated the operation. For about 25 years after this no advancements were made and the operation was not done. It was revived in 1881 by Gluck and Zeller, through their experiments on dogs.

Other experimenters followed, Bardenhauer in 1886; Navaro, 1887; Tuffier, 1881; Tissoni and Pozzi, 1888; Van Hook, 1893; Chaput, 1894; Mauclaire, 1895; Krynski, 1896; Boari, 1896, introduced and experimented with an anastomotic button; Matas, 1899; Frank, 1900; and Peterson, 1901.

A large number of animal experiments are reported by these experimenters and numerous methods of implanting the ureters were devised. All experiments were attended by a very high mortality rate, the animals dying from peritonitis, pyleonephritis, etc., the result of ascending infection.

Peterson's statistics of 60 dogs in which one ureter was implanted, experimentally, gives a result of 23 recoveries or 61% mortality, and in 68 dogs in which bilateral implantations were made, 10 recoveries or 85% mortality, the cause of death being from peritonitis, giving way of sutures, infection of kidneys and ureters.

In 1878 Thomas Smith operated on a boy seven years old, for exstrophy of the bladder, anastomosing one ureter at a time. Death resulted after the second operation, post-mortem examination revealing complete obliteration and hydronephrosis of the kidney from the first operation, death having been due to uremia after the second operation. Kus-

ter in 1891 made the operation, but his patient died in five days. Cases more or less successful were reported by Chaput, 1892; Duplay, Trendelenburg in 1885; by Boari, Casti, Chalot, and Fowler, the latter obtaining the best results in a bilateral implantation, the patient surviving the operation about four and one-half years.

Peterson gives a resumé of 32 ureter-intestinal implantations in man:

Number of patients operated upon 20
Number of operations 33

Conditions for which the operations were made are as follows: Chronic cystitis, cancer of bladder, exstrophy of the bladder, ureterovaginal fistula, vesicovaginal fistula and cancer of the uterus. Both ureters were implanted in 18 cases with a primary mortality of 8 cases, or 44%. There was primary recovery in 10 cases, or 56%. One ureter was implanted in 15 cases, with a primary mortality of 3, or 29% and primary recovery in 12 cases, or 80%. Total immediate recoveries in all cases was 67%, and total immediate death 33%. Renal infection was noted in 11 cases. Of 11 cases remaining well, 5 were single implantations, which were well from six months to eight years, and 7 cases were bilaterial implantations, 6 of which lived from five weeks to one year, and in one instance the patient was well after four and one-half years.

The results herein given, showing the primary mortality at 33% and the uncertainty of subsequent renal infection in cases surviving the operation, makes the procedure one of doubtful utility and not to be recommended under any circumstances.

II. URETEROTRIGONOINTESTINAL ANASTOMOSIS

This method of urinary and intestinal anastomosis consists in implanting the ureters with a portion of the bladder trigonum attached, with the idea in view of maintaining the natural ureteral orifices of the bladder unmolested, thereby diminishing the danger of ascending renal infection. This operation is known as the Maydl operation (from the operator who first performed it). In 1901 Peterson applied the name of ureterotrigonointestinal anastomosis to it. Th

operation constitutes the only rational and justifiable method of ureteral implantation. No other form of implantation is justifiable.

The operation is made by sewing the trigonum with both ureters attached into the sigmoid flexure of the colon, with extirpation of the bladder at the same time, or a secondary operation is made later and the bladder defect closed by plastic measures.

The operation is limited principally to cases of exstrophy, or whenever the trigonum is normal, it cannot be used in cases of tuberculosis or cancer of the bladder, in which conditions the trigonum is the principal portion involved.

The effects of the operation are good. The patient immediately afterward experiences a sense of irritation in the rectum with constant desire to evacuate the same; this after a time subsides as the rectum becomes more tolerant, until complete tolerance has been obtained.

Of the 36 cases of Maydl operations tabulated by Peterson, 32 were performed for exstrophy, three for other congenital defects, and recovery took place in 31 and death in 5. The percentage of recoveries was 36; and the percentage of deaths was 14. The number of cases living and well at the end of one year was 19.

At end of two years	10
" " " three "	7
" " " four "	4
" " " six "	1
" " " seven "	1

III. VESICORECTAL ANASTOMOSIS

This method consists in the formation of a fistula between the bladder and rectum without extirpation of that organ. This operation has been performed with but little success in cases of exstrophy as early as 1851. Franks' experiments in vesicorectal anastomosis have been fraught with much interest. Frank found that in forming a com-

munication between the bladder and rectum with the aid of his bone coupler in dogs that infection of the kidneys was not liable to occur so frequently as by other methods. The utility of this operation in the human being remains to be proved. B. M. Ricketts, in *Current L. Clinic,* reported two cases of vesicorectal fistula, after complete prostatectomy.

REPORT OF EXPERIMENTS UPON DOGS

During the summer of 1901, a series of experiments upon dogs were conducted at the Lucas County Hospital. The object of these experiments was to find, if possible, a rational method of implanting the ureters into the intestine when they were divided anywhere in their course between the bladder and kidney. About 30 dogs were taken for the experiments.

The operations were conducted in as strictly aseptic manner as possible, the technic of which was as follows: The anesthetics which were employed were ether and the administration of chloretone by the stomach. In a few instances chloroform was used, but on account of its toxic effects it was abandoned. Ether was given through a cone made of paper and covered with towels, which was placed over the mouth and nose, thus enabling the anesthetist to control the animal before complete anesthesia was produced. Operating under the effects of chloretone proved a great success. The amount of the drug used was in each case varied; the rule was to give 1-10 gram per kilo in weight of dog (about 2 grains to every pound in weight of the animal). This was administered about two hours before the operation, by placing it on the tongue of the dog and holding its head so as to make it swallow.

At the time of the operation the dog would be fast asleep, thus permitting the operator to put the animal on the table without any struggling, and which allowed the most extensive manipulations in the abdominal cavity. During the operation under the anesthetic the animals evidenced no shock, the heart's action and breathing remained good and thus enabled the operator to perfect his work in an eas-

and deliberate manner without the fear of having the dog succumb under the anesthetic before the completion of the operation, as had occurred often before.

After the operations the animals would sleep from a few to as many as 48 hours, this latter being the worst feature of the method. If the animals regained consciousness in two or three hours after the operation, they were able to care for their own wounds, while those dogs which did not regain consciousness in from 24 to 48 hours after the operation, had, by this time, such extreme infection so as to render subsequent recovery slow or impossible.

The animals were placed on their backs, tied in a trough (V shaped), placed on a regular operating table, permitting them to be raised to the Trendelenburg position, a procedure which greatly facilitated the work on the bladder and ureters. The abdomen was aseptically prepared. Great care was exercised during the operation to avoid soiling the peritoneal cavity, and when it was possible the entire operation was made outside of the abdomen.

Without giving an exact account of the various methods adopted for anastomosing the ureters with the intestine, only a general mention of them will be made. Our experiments as to the method of implantation may be divided into four general classes:

(1) Implantation of one or both ureters by severing them from the bladder and anastomosing them directly into the rectum, with or without extirpation of the bladder.

(2) Implantation with the base of the bladder attached, after Maydl.

(3) Implantation by burying the ureters in the intestinal wall, before entering them into the lumen of the gut.

(4) Implantation of the ureters into the *appendix vermiformis.*

These operations are much more difficult in the dog than in man; the ureters are necessarily smaller in size, the danger of infection being greater, and greatest care and skill must be exercised in suturing.

The results obtained from these operations were bad, the mortality being high, the animals living from one to seven days after the operations, excepting in one instance in which the animal lived for two months. The cause of death in all cases was either peritonitis, ascending infection to the pelvis of kidneys from pulling out of ureters, after implantation, and from intestinal obstruction.

These experiments verify the results of other investigators in this field, as the same results were obtained and practically the same conclusions drawn, *i. e.*, that successful ureteral implantations into the intestine, without the trigonum, by methods heretofore used, is practically impossible. A distinct advance, however, was made and one which we believe with further experimentation and investigation offers prospects of success, *i. e.*, the utilization of the vermiform appendix for the anastomosis. The idea was first suggested by Dr W. J. Gillette after we had made a number of unsuccessful implantations and were somewhat discouraged by the results obtained.

Immediately we began implanting ureters into the appendix, but even here we met with no signal success, excepting in one case in which the right ureter was implanted into the appendix, the dog recovering from the operation and voiding urine from the rectum. The animal lived for about two months when it was killed, the post-mortem examination, much to the chagrin of all concerned, revealed complete obliteration of the right kidney with its ureter, as a sequence of ascending infection.

It is a difficult matter to form a just estimate of uretero-appendicular anastomosis, as it cannot be carried out in the dog and other lower animals as it could be done in man.

The appendix of a dog is a short, broad, quadrangular *cul-de-sac,* about ½ to 1 inch in length, and of about the same width; this renders infection from the appendix of a dog just as liable as from any part of the intestinal tract.

In man the shape and length of the appendix as well as its situation seem to make it an ideal place for t

anastomosis whenever it is necessary to implant one or more ureters into the intestinal tract, without the trigonum of the bladder.

REPORT OF A SUCCESSFUL CASE IN MAN

This case was reported in the *Journal of the American Medical Association* of January 3, 1903. The patient, a male, aged 29, entered the Lucas County Hospital on April 2, 1902. The father died of Bright's disease; the mother died of so-called "dropsy;" the brothers and sisters are all living. There is no tuberculosis or cancer in the family. The patient relates that since birth he has had no control over his urine; it has always dribbled away, but he did not know what it was. He was operated upon when still a child in Greifswald, Germany, but he cannot give the exact nature of the operation. He has always been obliged to wear some sort of a receptacle to hold the urine; otherwise he has enjoyed the best of health. About one year previous to his entrance to the hospital, he underwent several operations for the relief of his condition. These operations consisted in the endeavor, by means of plastic operations, to cover the defect in the bladder, but they were not successful. At the same time he also underwent an operation for the relief of a large left inguinal hernia, which was thereby cured. He states that previous to these operations, his genitals consisted of a rudimentary penis which was double, and that the urine flowed from one side of the organ.

The rudimentary penis was removed during the plastic operations and examination of the patient at time of entrance revealed a well-nourished, tall, muscular individual, presenting no emaciation; the heart, lungs, liver, and spleen were apparently normal. Above the symphysis pubes is an area of deep red tissue looking like granulation tissue and covered by purulent secretion, which on close inspection proves to be a part of the bladder; from the lower part of the same urine can be seen to spurt at intervals of 30 to 60 seconds; both ureteral orifices can be seen and ureteral catheters can be passed into them. The abdominal wall, as well as the

anterior wall of the bladder, is absent, which permits the posterior wall to prolapse forward.

The diagnosis of exstrophy of the bladder was easily made. Catheterization of the ureters, and examination of the separate urines, gave the following result: Left kidney—the urine runs very freely through the catheter and is of a clear amber color, acid in reaction, highly albuminous; on microscopic examination, epithelial cells, leukocytes, urates, but no casts are found. Right kidney—the urine is of a dirty greyish color, flocculent and opaque, containing albumin, but not so much as is present in the other kidney; on microscopic examination there are found great quantities of pus, red blood-corpuscles, epithelial cells, but no casts. The urine examination reveals mainly the following facts: Both kidneys are the seat of chronic inflammation; the right one more so than the left, which is the result of ascending infection.

Operation: A ureterotrigonointestinal anastomosis, modified after Maydl, was made on April 19, 1902, (Drs Brewer and Steinfeld assisting). A mixture of chloroform and ether was the anesthetic used. The patient was prepared in the usual manner, while special care was given to the sterilization and preparation of the exstrophied portion of the bladder, which was the infected area to be feared. A ureteral catheter was passed into each ureter; the incision made immediately above the bladder about four inches in length, and the peritoneal cavity was opened; the patient was raised to the Trendelenburg position. The intestines were held back by sponges. The incision was carried downward to the center of the bladder (between the ureters) dividing it in two. The ureters could be plainly seen running outward, backward, and upward; with the catheters in them, they were surprisingly large and easy to manipulate, which greatly facilitated the work. Each ureter was dissected free by cutting it away from the bladder, leaving a circle of bladder tissue about one-half inch around the vesicoureteral openings thereby leaving the natural uretera[1]

openings into the bladder unmolested. The peritoneum on the right side was incised and reflected along the course of the ureter, permitting the ureter to be lifted from its bed. The peritoneum was further stripped from the posterior wall of the pelvis around to the rectum. An opening into the right lateral side of the rectum was next made at about the level of the sacral promontory, into which the ureter with bladder-wall attached was sutured; first, mucosa of the bladder to mucosa of the rectum by a continuous silk suture (black iron-dyed silk), then the serosa of bladder to the serosa of the rectum were also applied to make the anastomosis more secure. The reflected peritoneum was finally sutured back into place (by a continuous catgut suture) making the entire anastomosis covered by peritoneum and placed extraperitoneally. About three and one-half inches of the lower part of the ureter was placed in a new position. The same procedure as described for the right side was made on the left side, the anastomosis on the left side being made opposite to the one on the right, a trifle lower. The peritoneal cavity was thoroughly irrigated with salt solution, sponges removed and the patient was lowered to the flat position. All of the remaining portions of the bladder walls were extirpated, hemorrhages being controled by ligatures and cautery.

The incision was closed by interrupted silk-worm-gut sutures supplemented by layer suturing of catgut. In the lower angle of the incision, where tension was great, a few tension sutures were applied. A large drainage-tube was left in the lower angle of the wound and the whole abdomen was supported by broad adhesive strips.

After the operation the patient suffered greatly from the shock, but, under stimulants and salt infusions, recovered. Immediately after the operation the urine seemed to irritate the rectum, the desire to urinate being constant, which gradually disappeared as the rectum became more tolerant, until a tolerance of three to four hours was obtained. The abdominal wound became infected as was anticipated, sup-

puration was profuse which ceased after a time, allowing the wound to heal gradually, until at present it is practically closed. A fistula persisted for some time, the result of a suture imbedded deep in the lower angle; after the removal of the suture this fistula closed.

A ventral hernia has developed at the operation site, which is especially noticeable when the patient is in the upright position. His condition now, 13 months after the operation, is good, his occupation is that of a coachman, and he works with no inconvenience, voids urine about every four to six hours, and is able to retain it throughout the night. For a few months after the operation, occasionally, he would pass the urine unconsciously during sleep, but this has gradually disappeared. He gives no evidence of renal infection. A recent examination of the urine reveals it to be of a greyish white color, flocculent, the specific gravity is 1.010; strongly alkalin, and contains no albumin or casts.

On the Value of Ureteral Catheterization and Urine Separation with Hemo- and Urino-cryoscopy in Surgical Diseases of the Kidney

BY WILLIAM E. LOWER, M. D., CLEVELAND

Renal surgery has kept well apace with the rapid strides made in the surgery of other organs. However, the good showing in the surgery of the kidney has not been, as in many of the other instances, due so much to the improved technic of the operation, as to the better methods of diagnosis.

The splendid results in renal surgery which are now being reported from all over the world are encouraging in the extreme, and are splendid monuments to greater precision in diagnosis. To analyze briefly the cause of the high mortality rate of a decade or more ago, we find the principal reasons for the post-operative deaths to be, (1) the

congenital absence of a second organ, which is assumed to be present; (2) the degeneration of the organs, whereby a partial or total disappearance of the same has occurred; (3) a pathologic condition of the other organ, which is of normal shape and size, but which is functionally more or less inert. To eliminate these factors from the cause of post-operative deaths is the object toward which the clinicians must direct their efforts.

How are we to diagnosticate the presence or absence of a second kidney? The methods formerly in vogue, and still recommended by some, were inspection, percussion, palpation, and actinography. A mere mention of these methods is enough to show that none of them have any absolute worth. All are unreliable, and at times highly inaccurate. Much more reliable are the methods of cystoscopy, ureteral catheterization, and lastly the exploratory incision.

When ureteral catheterization is possible, a definite demonstration of the presence of a kidney can be established, especially if a stilet is used, and an X-ray picture is taken. If catheterizing the ureter is not possible, then a separation of the urine by one of the different separators should be practiced and in this way establish the separate flow of urine.

Having determined the presence of a second kidney, how can we best determine the functionating capacity of that organ? By the functionating capacity of the kidney is understood the power to elaborate its peculiar excretion. If there is to be a cutting operation on a kidney it is not enough to know that there exists a second kidney, but it is absolutely necessary to know that there is present a second kidney in good enough condition for the preservation of the patient. In order to establish this it is necessary to obtain the urine from each kidney separately. For this two methods are known, the direct and the indirect. The direct method consists in obtaining the urine directly from the ureter or kidney by ureteral catheterization; the indirect, by getting the urine separately in the bladder, or by com-

pressing one of the ureters. This latter method is probably no longer in use.

When it is possible to do a ureter catheterization the separation is absolute; and this should be the method of choice. It is true that it is more difficult to do, but it is more certain in its results. Not only is the result of separation more definite, but the source of any pathologic products is determined, *i. e.,* whether in the upper or in the lower urinary tract.

The objections to catheterization are well known, but they are not well founded. They are, (1) that the method is unsafe; (2) that it is difficult of application. The writer's own experience is still too limited to be of great value, but in upward of 30 cases in the past six months there have been no symptoms whatever of any infection, and very little, if any reaction. Those of larger experience report equally good results. That it is of difficult application cannot be denied, but that it can be done safely is enough to recommend it.

The advantages claimed for the different separators and segregators are their ease of application and the less danger of infection. It has been my experience that the use of any of the segregators or separators is more painful and annoying to the patient than the cystoscope, especially in the female, for in this class of cases the cystoscope can be removed after the catheters are introduced, and there remains absolutely no discomfort while the urine is secreted.

The worst feature, however, from the use of a separator or segregator is that it furnishes no clue whatsoever as to the source of the pathologic elements found in the separate specimens. An ulceration in the bladder may show pus and blood in one specimen and nothing in the other, yet both kidneys may be absolutely healthy.

All advocates of these instruments recommend that the cystoscope be used in addition to diagnosticate the source of the trouble; if, then, the cystoscope must be used to clear

up the location of the lesion, why not use the catheters at the same time? I only use the separator or segregator when catheterization cannot be done, and this occurs in not more than 15% of the cases.

The obtaining of the separate urines is, however, not the only use for the ureter catheter, but probably it is the greatest use. The additional diagnostic values of the cystoscope and catheter are, (1) whether the bladder or the kidney is the seat of the affection; (2) the presence and location of a stricture of the ureter; (3) the presence and location of a stone in the ureter; (4) a differential diagnosis between diseases of the kidney and surrounding organs, and in this last application the writer was recently able to clear up two very interesting cases. The one case was a most unusual one, in which during the passage of a renal calculus an appendicitis developed; a mass formed over the course of the right ureter in the inguinal region, and by the usual methods of inspection, palpation, etc., it could not be determined whether we had to deal with an appendiceal abscess or an inflammatory mass around the right ureter. The ureteral catheters were inserted and passed freely; urine flowed with equal rapidity from both sides. A diagnosis of appendiceal abscess was made and verified a few minutes later by opening a large abscess, caused by a necrotic and broken-down appendix. The case made a splendid recovery.

In another case in which there were repeated attacks of right-sided pain, chills and fever, muscular rigidity, vomiting, etc., no positive diagnosis could be made. Two physicians had diagnosed appendicitis, one a renal calculus, and still another diagnosed inflammation of the gall-bladder. At the time the case was presented for examination, a mass could be indistinctly outlined in the right hypochondriac region; there was muscular rigidity and great soreness.

From the physical signs present it looked as though it might be any one of the organs before mentioned. There

was, however, a history of having found on several occasions a brick-dust sediment in the urine. Double ureter catheterization was done, and a surgical kidney on the right side was diagnosed. It was operated upon and a large infected hydronephrotic kidney removed. The case is progressingly favorably.

After the urine has been obtained from each kidney, what is the best method for ascertaining the amount of work being carried on by each kidney? Albumin in the urine has been the one symptom indicative of a diseased kidney, upon which the profession has relied for many years. No albumin present has until recently meant no disease. However, the discovery of casts in the urine, when there was no albumin, changed the significance of the presence of albumin, and caused the profession to seek other means of diagnosis.

The estimation of the total amount of solids in 24 hours, especially the amount of urea, has been of great aid in determining the sufficiency of the kidneys, but as this may vary with the quantity of nitrogen taken, upon the amount of exercise, and upon meteorologic changes, etc., it becomes a rather unreliable symptom unless all the above conditions are taken into account, and the period of examination is extended over a number of days.

Slightly less objectionable but not, however, much more satisfactory is the method in which the excretion of certain substances introduced into the body is determined. The first indication of attempting to utilize this method as a diagnostic measure is to be found in the writings of Beauvaere in 1853. He saw in the absence of the odor of asparagus from the urine a characteristic symptom of nephritis. Since then the intolerance to opium, quinin, salicylic acid, mercury, etc., have been held at different times to be an indication of renal insufficiency.

Of late the amount of discoloration of the urine produced by the introduction of methylen blue into the body has gained a more general attention, but recently it has

been found that it only tests the permeability of the kidney, and is now more or less abandoned as a diagnostic measure.

Another method, which is in part dependent on the secretory function of the kidney, is the so-called phloridzen method, by which not only its secretion but also its chemical activity may be determined. It has been observed when phloridzen was injected into an animal, after a lapse of 20 or 30 minutes, sugar appeared in the urine, the amount varying with the condition of the kidney. It was concluded therefore that it not only showed the permeability of the kidney, but also the functional activity of the renal cells.

Casper and Richter have worked this out clinically, and state that combined with ureteral catheterization it is to be classed as one of the valuable aids in the determination of the functions of the kidneys.

Besides the various chemical methods just mentioned, there remains another method which is probably destined to play a greater part in the diagnosis of the renal function than any other that has yet been introduced. This method is cryoscopy, and here refers to the freezing of the blood and the urine. To this procedure the writer desires particularly to call attention. As is well known, the greater the number of molecules in a given solution the lower will be the freezing-point below that of distilled water, and in this way the amount of solid constituents in the urine and blood can thereby be obtained.

Dresser was the first to apply this to urine, but it was Koranyi who first gave this method its practical application in attempting thereby the secretory activity of the kidney. This work of Koranyi created a very great interest among the scientific clinicians, and much has been done and written on this subject. While none attribute to it absolute worth, all agree that it is of the greatest supplementary aid. The normal freezing-point of the urine varies from 1.2 to 2.3 below that of distilled water, the normal freezing-point of the blood being .56 to .57.

Kummel has made a study of the freezing-point of the blood in 265 persons, including 137 subjects with normal renal functions. If the freezing-point remains within normal limits, .55 to .57, in a case of unilateral nephritis, the kidney can be removed without apprehension; that is to say, the other kidney is doing compensatory work. In 40 such cases recovery was uneventful and the renal function undisturbed, while every case in which the freezing-point was .59 exhibited a sluggish renal function afterward and also albuminuria.

These facts are further established by the results in the cases in which the freezing-point was .58 to .81. The assumed renal insufficiency was confirmed in every instance by the autopsy or operation. Nephrectomy is still possible at .59, but .60 is the extreme limit of permissible nephrectomy. It has been found in nearly all the cases when the freezing-point of the blood is low, that of the urine will be high. Urinocryoscopy with ureteral catheterization and urine separation has been of the very greatest aid in the clinical experience of the writer.

The freezing of the urine is a comparatively simple matter. At least sufficient urine to cover the bulb of the thermometer should be used. The Beckmann apparatus is probably the best instrument. The freezing should be done while the urine is fresh.

In two cases of tubercular pyonephrosis, in one case of a suppurating cyst of the kidney, in one of pyelitis and infected hydronephrosis, the functionating capacity of the supposed healthy kidney was ascertained by urinocryoscopy. All of these cases showed a renal sufficiency. Nephrectomy was done in each case, and all made good recoveries. An equally good result was obtained in a case of nephrotomy.

In two cases, one of hemituria and one of pyuria, operation was advised against because of renal insufficiency. The justification of this advice was demonstrated when both cases succumbed to uremia, one 10 days and the other three weeks after the examination.

In a goodly number of cases pus has been demonstrated in one or the other kidney, but in all the cases a good functionating capacity was present. The kidney substance was probably not much involved, the infection being in the pelvis. In such cases the administration of urinary antiseptics and washing of the pelvis have been of very great benefit.

The writer does not offer this method of cryoscopy as a substitute for the other methods of examination, for it in no way determines the anatomic condition as shown by the presence of pus, albumin, casts, red corpuscles, and microorganisms, but offers it only as an important supplement, and as the best known way at present of determining the functions of the kidney.

The deductions from a previous paper on the same subject are submitted in concluding:

1. Before doing a cutting operation upon the kidney, especially before doing a nephrectomy, the presence of a second functionating kidney should be established.

2. The best and safest method for ascertaining the presence of a kidney is by the aid of cystoscopy and ureteral catheterization.

3. The function of the kidney is best determined, in order of importance:

(a) By the freezing-point of the urine.

(b) By phloridzin glycosuria.

(c) By the freezing of the blood.

(d) By the quantity of urine excreted.

4. The most reliable method of obtaining the separate urines is by the ureteral catheter.

Prostatic Surgery

(Historic and Experimental)

(ABSTRACT)

BY BENJAMIN MERRILL RICKETTS, PH. B., M. D., CINCINNATI

PROSTATE

Anatomy: Two lateral and a middle lobe constitute the prostate which was first described by Home in 1806. The gland is not constant and is of many variations. Normally it is about one and one-half to two inches in its transverse diameter; one inch anteroposterior in diameter and one inch in depth. It is composed of Cowper's glands (each the size of a pea), numerous follicles and vascular tissues arranged to form about 20 channels lined with columnar epithelium (excretory ducts) through which a milky, slightly acid, fluid passes to dilute the semen. All vertebrates fecundate in the same way.

The *blood-supply* is from the internal pudic artery. The venous blood enters the internal iliac vein through the dorsal vein.

The *nerve-supply* is from the hypogastric plexus, and the filaments of the sympathetic.

Etiology: Man is the only animal that has hypertrophy of the prostate. No definite cause is as yet assigned. Habits, disease and evolutionary changes from quadripedal to bipedal state is probably the most important factor.

"Prostatic hypertrophy is not found in Japan, India or China." (Otis.)

Surgery of Prostate: Ammonius Lithotomus, B. C., 460-357; Johnnesde Romanes, in 1555; Ran of Leydon and Frere Jean, in 1700, in operating for stone, no doubt contributed much to advance the various subsequent operations for prostatic hypertrophy.

Cystotomy may be said to have been inaugurated when the bladder was first opened for any purpose.

Both perineal and suprapubic drainage have been successfully accomplished with more or less benefit in hypertrophy of the prostate.

Massage was first employed by Estlander in 1878. Hogge claimed priority in the use of electric massage. Lewis in 1899 employed the finger and condemned instruments for this purpose. Neiswanger in 1900 employed cataphoric applications of iodin in hypertrophy of prostate.

Injection of various solutions, such as argentinitras, iodin and cocain, into the prostate, was done by Hall in 1887 with no special effect. Haurate in 1896 injected testicular extracts into the prostate.

Ligation of cord was done by Mears in 1894 without effect.

Ligation of iliac arteries was done by Bier in 1893, and Meyer in 1894, while Loze, in 1898, removed the *vesico-venus plexus.*

Vasectomy was employed by Lonmean in 1895, since which time there have been several hundred such operations.

Steinart, in 1896, showed by experiments on rats that the removal of the seminal vesicles and prostate gland does not lessen the sexual passion or ability to perform the sexual act, with a discharge of spermatozoa, but that fertilization is prevented. The ability of the semen to fertilize is lessened by the removal of their vesicles. The operation of vasectomy has become obsolete.

Castration was first performed for prostatic hypertrophy by Mercier, in 1857, but was not again performed until 1893, when White, Ramm and Cabot did it. Removal of one testicle is supposed to cause its corresponding prostatic lobe to undergo atrophic changes while the removal of both testicles will cause atrophy of all the lobes. The operation was based upon the fact that Eunochs do not have prostatic hypertrophy. Several hundred cases of prostatic hypertrophy have been subjected to emasculation with more or less benefit. It should be done in but a few selected cases, such as extreme age or lessening of vitality or before more radical

measures. The operation is seldom considered since the inauguration of prostatectomy.

Prostatotomy consists in incising the prostate by knife, cautery or otherwise for abscess, cysts, foreign bodies, injuries or pathologic conditions.

Tenotomy of Levator Prostate was first done by Wyman in 1885, and again by Andrews in 1902, with much beneficial result.

Urethral Prostatotomy: Incising the prostate through the urethra by knife, catheter and various other devices dates from Home in 1817, since which time many such operations have been done by as many different devices. Much benefit has been obtained from this method, but it is no longer considered rational.

Galvanocautery has been employed since 1875, when Rabitsch and Bottini reported the result of their work. The cautery was very seductive and attended by much mortality and uncertainty in its results. It is applicable, if at all, in but a few cases of a selected type. It cannot be considered a rational procedure as the cautery cannot be seen.

Perineal Prostatectomy is the removal of a part or all of the prostate gland through a median, transverse or lateral perineal incision.

Gibb's question, in 1857, was "cannot enlargement of the middle lobe of the prostate gland be removed by the lateral operation for lithotomy?" This is one of the earliest suggestions for the removal of the prostate gland through a perineal incision.

Since this time many such operations have been made for this purpose, and there can now be no question as to this route and method being the most acceptable and beneficial operation for hypertrophied prostate.

RECTUM FOR URINARY RECEPTACLE

Ricketts, in 1902, in removing the prostate gland in two cases of emergency succeeded in diverting the urine into the rectum.

During the last century there have been several cases reported in which the vagina was closed by an operation which allowed the urine to escape into the rectum for the relief of vesicovaginal fistula.

PROSTATECTOMY (SUPRAPUBIC)

Only a part of one or more prostatic lobes can be removed by this method. Usually complete removal of the lobe is confined to the middle lobe for which it was first intended. Roonhysen in cutting on the gripe or with a grooved sound and gorget found it impracticable, and he was forced to perform the suprapubic operation for stone, which was probably one of the first suprapubic operations. Lisrink, in 1882, was one of the first to remove the prostate gland suprapubically, since which time many such operations have been made for prostatic hypertrophy with great success. Of all operations for hypertrophied prostate the perineal and suprapubic operation remain supreme in their respective order.

PROSTATECTOMY (PERINEAL AND SUPRAPUBIC COMBINED)

The combined operation has many advantages in a certain class of cases of prostatic hypertrophy. However, since the many prostatic retractors have been devised there is not the necessity for entering the bladder suprapubically.

Fuller, in 1895, removed the prostate gland and drained through the perineum and suprapubically.

Abscess of Prostate is common and more frequently due to cysts, gonorrhea and trauma, usually gonorrhea. The most frequent way of escape is into the rectum.

Tuberculosis seldom originates in the glandular tissue, primary disease being rare in the prostate.

It is usually secondary and may involve a part or all of one or more lobes. It was first described by Louis. Complete removal of the disease is necessary and should be done.

ECHINOCOCCI

The most common parasite found in the prostate gland is usually of primary origin. The cyst usually ruptures into

the bladder or rectum, in which case spontaneous recovery will ensue. If it ruptures into the peritoneal cavity death may result, or the parasites may become encysted and remain harmless indefinitely.

Calculi form in the prostatic ducts and may be discharged into the urethra or remain in the prostate to become encysted.

Fuller, in 1900, reports such a stone weighing three ounces.

Carcinoma of the prostate is more frequent in childhood and beyond the age of 50, primary or secondarv, usually the latter. Often it is found in the civilized races, and originates, as a rule, in the mucosa of the prostatic urethra. No treatment, surgical or otherwise, is at present of any avail.

Beling, in 1822, records an interesting case of prostatic carcinoma.

Sarcoma of the prostate is usually hard and of slow growth, originating in the cortical substance and is more frequently found in the young. There is no hemorrhage except in advanced growths. This may be primary or secondary, usually primary.

London Lancet (1853, 1,473) mentions a case of sarcoma of the prostate. Early removal should be done, as it is the only hope.

Prostatectomy with vesicorectal anastomosis is an operation destined to become popular, and as frequent as any of the operations for hypertrophied prostate.

It has been shown by Frank and Ricketts (experimentally) that ureterorectal implantation is not followed by kidney infection so frequently as when their implantation is made in the gut above the rectum.

The danger decreases as the implantation approaches the internal sphincter.

Vesicorectal anastomosis is especially desirable in those cases in which the rectal wall has been opened by catheter or otherwise when the opening cannot be successfully closed, and in cases in which the urethra has been destroyed to such

a degree that the flow of urine cannot be reestablished through the penal portion.

It is possible to remove the prostate intrarectal after diversion of the sphincter ani, or if necessary completely dividing the sphincter ani by one or two lateral incisions.

In those cases in which the urethra has been destroyed, or in which it cannot be maintained, the rectal route is the quickest, safest done with less hemorrhage, better drainage, and without the possibility of a perineal fistula, which so often follows perineal prostatectomy.

B. M. Ricketts, 1902, succeeded in diverting the urine into the rectum in two cases of complete prostatectomy for emergency. Vesicorectal anastomosis has been done for several centuries for vesicovaginal fistulas. It has, however, become obsolete, because of other more desirable methods having been instituted.

However, there are a few cases when the base of the bladder has been destroyed by disease pressure during the delivery of offspring, or other injury in which there is no other alternative but to make a vesicorectal anastomosis.

It is just so with vesicorectal anastomosis in the male; it is not suggested as a routine operation. It is only to be employed in a selected type of cases. If the proper selection is made better results will be obtained than by any other method in that type.

DISCUSSION

Dr Dudley P. Allen, Cleveland: I have performed this operation three times with one death. The man who died lived for a considerable time after the operation was performed. I informed the family that all danger was passed. Leakage into the abdominal cavity followed, however, and the man died. He had undergone 29 previous operations for the closure of the opening. Death had resulted from the failure of union between surfaces made up largely of scar tissue. I showed one case at the meeting of the American Medical Association at their meeting a few years ago in Columbus. This case was a boy. I saw him a few days ago. He retains his urine from three to eight hours with-

out any trouble whatever. He is perfectly well, plays base-ball, foot-ball, etc. The third case was a man in whom the anastomosis was perfect. I received a letter from him recently thanking me for what I had done for him, and I think that it was one of the most grateful letters from a patient that I have ever received.

I think the point taken by Dr Jacobson, *viz.*, that the trigonum should be preserved is very important since only in the preservation of the trigonum shall we best avoid infection of the kidney. In the cases upon which I have operated in order to avoid hernia, I have divided the rectus muscle at its attachment to the pubes and the two median portions of that muscle have been drawn together so as to close the weak portion of the abdominal wall above the pubes. I have also been able to preserve the penis with its function.

In reference to the cases of Dr Lower, it seems to me that the work done has been most valuable and interesting. Many years ago while abroad I followed work performed along these lines. At that time I was not favorably impressed by it. Later on I saw the methods employed in this country, and also in my own clinic, but the resulting discomfort to the patient was so great that I still remained incredulous. Until recently I have relied upon other methods of diagnosis, and so far I have not been so unfortunate as to remove one kidney in the absence of a second functionated.

Years ago I operated upon a man who had a tubercular kidney on one side, which I removed. A tubercular process then developed in one of his testicles, which I removed. Later tuberculosis developed in the second testicle. I removed this and the man still remains well after about ten years. As it becomes evident that we can distinguish the condition of the kidney by catheterization of the ureters, the method becomes valuable in proportion to its accuracy. It must not be relied upon however to the exclusion of clinical evidence gathered in other ways.

In regard to the degree of function of the kidney as shown by freezing the urine, the methods employed are still crude, and the margin of possible error is large, but I am confident that with the caliber of men working along this line these points will be cleared up.

Concerning what Dr Ricketts has said in reference to

forming a rectovesical fistula, my impression is that it must be an operation of rare application. Whenever a malady has a vast number of remedies, as, for instance, Colles' fracture, we may suspect that none of the methods are very satisfactory. Up to the present time we have had many methods of cure for the enlarged prostate, and each one in succession has been abandoned. The operation which Dr Ricketts proposes is, I think, one which will be resorted to only in exceptional cases.

Dr John Perrier, Cleveland: Six months ago I had a patient come to me stating that for 10 years he had been passing urine which was very cloudy, and that was the only symptom he had. He had never had any pain on urination, no frequency of urination, nor any other symptom save the cloudy urine. On examination I found in the urine a large number of leukocytes, no red blood-clots, and no tubercle bacilli were found. It seemed almost inconceivable that this could be a cystitis, and that a cystitis could exist without pain or other symptoms. I asked another doctor to see the patient with me and on using the cystoscope it was discovered that the bladder was the seat of a low grade of inflammation with scarcely any of the mucosa left. I simply mention this to show how easily one may err in his diagnosis, for I supposed the conditions must surely be above the bladder, and also to show how easily points may be cleared up by this method of examination.

Dr Julius H. Jacobson, Toledo: There have been a good many valuable points brought out in the discussion of the papers. I will touch upon a point or two brought out in Dr Lower's paper. First, I wish to refer to the Harris segregator. I am pleased to hear of the Doctor's experience as it coincides with mine. The segregator often causes much discomfort and pain to the patient and its application is indefinite. You cannot tell just exactly what you are doing. You do not know whether you get urine from each kidney or a mixed urine. The use of the cystoscope and urethral catheter in the female bladder is usually a very easy thing, but even the passage of a urethral catheter in females is sometimes very difficult, and in males it is very much more so. The use of the cystoscope is a very valuable aid in making a diagnosis, but the man behind the instrument is the most important thing. I have seen abnormal things called

normal and normal things called abnormal by inexperienced manipulators of the instrument. When doing this work I sometimes think of the words of Dr Lydston and the truth of them, that in the hands of the unpracticed man the cystoscope is more or less of a surgical toy.

I heartily agree with Dr Allen that on account of the various methods devised for protatectomy it shows that none of them are very satisfactory. I noted the case in which Dr Ricketts reported the removal of the prostate so easily and nicely without ligature or hemorrhage. You may do this with a case once in a while, but the great majority of these cases are attended with hemorrhage, more or less traumatism, great shock, and many of them die. I have seen the removal of the prostate without the necessity of a ligature, and it is a simple operation. The matter of vesicorectal anastomosis is something which is practically new. Dr Frank, in his work on ureterointestinal anastomosis in dogs found this form best. Ureterointestinal anastomosis in dogs is very difficult, but an anastomosis in which the trigonum is included the results are much better. In a number of dogs killed afterward, after vesicorectal anastomosis, there was absolutely no ascending infection. In the simple implantation ascending infection was always present. Frank at that time predicted that vesicorectal anastomosis would be as common an operation as that of gastroenterostomy. The way to do it is not to go in through the rectum, as Dr Ricketts advised, but to make a laparotomy using either a Frank coupler, or Murphy button, placing one portion into an incision in the bladder and the other portion of the coupler or button in its rectum, this forming the connection.

Regarding Dr Allen's discussion, I would say that the Doctor's case of ureterointestinal anastomosis has become one of the classics in this subject and he is quoted very frequently in this connection. In this case he stated that 29 plastic operations had been made to cover the defect in the bladder-wall by the old method of operating in cases of exstrophy and that he was able to save the genitals. In my case a great many more plastic operations had been made previous to his coming under my observation. In these plastic operations the genitals with the exception of one testicle had been removed.

One of the interesting features of my case is the disappearance of albumin from the urine after the operation.

I cannot explain this unless it be that the ureteral orifices now in the rectum are in a better situation as far as infection is concerned than when they were in the exstrophied portion of the bladder and continually bathed in pus.

Dr William E. Lower, Cleveland: I desire in closing to thank the Association for the kind discussion of my paper. I am sure that all who are doing operative work on the prostate will be very glad to have this subject cleared up. There has been a very great uncertainty as to the best operative method to pursue. I formerly did the suprapubic operation for removal of the prostate. I am inclined now to believe that the perineal method is better.

The Bottini operation, as Dr Jacobson has stated, will always have a place, for it does give relief in a goodly number of cases. The case of exstrophy of the bladder which the Doctor reported is very interesting. I had a similar case in a child, upon whom I first did a plastic operation and succeeded in getting a very excellent result. Of course this operation did not furnish a sufficient reservoir for the urine. Shortly after Dr Allen's favorable report of the Maydl operation appeared, and I decided to do a second operation, which I regret to say ended fatally, the child dying of shock about six hours after the operation. I believe this operation should not be attempted in so young a subject.

Dr B. Merrill Ricketts, Cincinnati: Concerning the use of the cystoscope as suggested by Dr Lower, I would say that it is not without its dangers and uncertainties. Ureters are not always normal in structure, number or position, or the ureters may be crossed, or several ureters may connect to form one common ureter to enter the bladder or any point.

The extracting of urine from either side of the bladder does not always indicate that urine comes from any particular kidney. The work of Dr Lower, however, should be highly praised for it has added much to the treatment of and disposition of diseased kidneys.

I do not see how Dr Allen could infer from my remarks that I would advise vesicorectal anastomosis in all cases of hypertrophy of the prostate. At present I think that it is but the few that should be so treated, but I believe that it will be more frequent than ever, especially in the aged and those which great trauma has been done, and in which quick

work is demanded. I absolutely condemn the so-called Bottini operation believing that it does not have any place whatever in prostatic surgery even when the cautery is applied through an open perineal or suprapubic incision. Dr Jacobson mentions anastomosis with the appendix. The urine would cause irritation of Gerlack's valve to such a degree that would cause stenosis of that valve and subsequent complete obstruction. Complications would then arise that would tax the most ingenious. His method of implanting sections of the bladder-wall with the ureter is certainly the best. Infection is less likely if the ureter is implanted in the rectum, and the dangers increase as the implantation is made higher up in the gut. Drainage is better in low implantation and there is less danger of feces entering the bladder. Herein are the advantages of uretero- or vesicorectal implantation.

Referring to the operation for extrophy of the bladder, I would say that Dr Jacobson is to be congratulated upon the most excellent results obtained in the patient he presents to us today. Dr Vance, of Louisville, has done some excellent work in this line.

I myself, 15 years ago, made two attempts to remedy extrophy of the bladder but failed. They are desperate cases to deal with, but we now have means at our command that enable most radical work and the most promising results.

A Simple Method for the Control of Anal Hemorrhage

BY THOMAS CHARLES MARTIN, M. D., CLEVELAND

Anything that will stop bleeding is worth consideration. That a simple method may be described briefly is not to its demerit. Given a hemorrhoid removed, the wound should be lightly cauterized and closed by the buttonhole stitch. The suture should be set with a long free end attached at the upper angle of the wound. Should there subsequently develop a hemorrhage, the resident surgeon or trained nurse, or whoever is in charge, should draw the Sims' postured patient to the bed's edge, take the suture (which is attached to the upper end of the wound) in the

left hand and a pair of opened hemostats in the right; then, at the moment when the patient, in obedience to a command, strains as at defecation and the pelvic floor descends and anus everts, the attendant should draw taut the suture-end and hold exposed and accessible to his forceps the entire length of the wound. No attempt should be made to individualize the bleeding points; the wound should be clamped throughout its length.

One Thousand Abdominal Closures by a New Method Without a Known Hernia

BY J. F. BALDWIN, A. M., M. D., COLUMBUS

Surgeon to Grant Hospital; Fellow American Association of Obstetricians and Gynecologists, Etc.

A half dozen, or less, ventral hernias out of a hundred abdominal sections, will give a surgeon far more annoyance, embarrassment and worry than an equal number of fatal results. In regard to his fatal cases he may justly feel that all was done that human power could do, and that the result was inevitable; but with hernias he cannot but feel that with greater care, or by a different procedure, the unfortunate result might have been obviated, and the unhappy patients and their friends are very apt to take the same unfavorable view of it.

According to the statistics carefully collected by Dr W. D. Haggard, of Nashville, in an excellent article on the methods of closing abdominal incisions in *American Medicine* (February 7, 1903), it is probably fair to assume that about 10% of abdominal sections closed by prevailing methods result in subsequent hernias. If the incision becomes infected, then at least 50% of hernias will follow. It would seem as though methods should be devised which would greatly reduce this percentage.

In a personal experience covering over 2,000 celiotomies, I have used all the methods that have ever been seriously suggested, but have finally adopted a method

which, in something over 1,000 cases, has failed to show a single known hernia.

The through-and-through suture is recognized by all as giving unsatisfactory results, and it makes no difference whether silk, silk-worm gut, or wire is used as the suture material. That method entirely fails to secure anything like coaptation of the fascia, unless it be by the merest chance, and a weak abdominal wall is almost a necessary consequence.

Buried silver wire, while securing accurate coaptation and ideal immediate results, is entirely unsatisfactory in the end. That the silver wire is sterile, or easily made so, is of course true, but the statement sent forth from Johns Hopkins that the silver salts resulting from the contact of the tissues with the wire are slightly antiseptic, cannot be believed by those who have had any extended experience in the use of this material. It has happened scores of times in my work with silver wire that six months to a year after apparently perfect union, the wire has become the source of suppuration, with the formation of an abscess which only healed after the wire was fished out. My experience with silver wire was absolutely and unequivocally disgusting, and I was not surprised when told by one of the leading surgeons of the Johns Hopkins Hospital, at the Philadelphia meeting of the American Medical Association, that that material was no longer so used at that institution. I have seen no published statement, however, to that effect.

Silk-worm gut as a buried suture has all the disadvantages of silver wire, besides some peculiar to itself. Its ends cannot be bent down flat, and its surface may become quite rough. It is as unabsorbable as wire. A number of years ago I reopened an abdomen some five years after the appendages had been removed by a surgeon in southern Ohio. For some reason he had used silk-worm gut in closing the tops of the broad ligaments. There had been no infection, but there had been constant discomfort in the pelvis during the intervening years, and at the operation the broad ligaments,

bristling with a dozen silk-worm gut sutures—as stiff and hard as when first inserted—appeared like a section of barbed-wire fence running across the pelvis. The use of buried silk-worm gut, while advocated by a few surgeons not many years ago, has been, I think, abandoned by all. I used it in but a single case and had to remove all those stitches subsequently.

Catgut, chromicized so as to last from two to four weeks, if it could be made assuredly sterile and be so kept until absorbed, would be absolutely the ideal material for closing the abdomen. Catgut, unfortunately, is very much like the little girl in Mother Goose,

"who had a little curl,
Right down the middle of her forehead.
Who, when she was good, was very, very good,
But when she was bad she was horrid."

Catgut can unquestionably be rendered absolutely sterile, but in its introduction it is liable to become infected by the fingers of the operator, or by the instruments, sponges, or what not, in the field of operation. The surgeon's fingers, as the thread slips through them, are probably the greatest source of danger, but the other sources cannot be obviated entirely. If the gut once becomes infected, the infection will almost certainly extend from end to end of the wound with resulting disaster. If the catgut is used only to bring the fascia together, and the rest of the wound is closed with through-and-through silk-worm gut, then the occurrence of a single stitch abscess may infect the catgut, and again disaster will follow. (If catgut or kangaroo tendon is used, then rubber gloves should be worn by the operator when closing the incision, and every care taken to avoid any possible infection of the suture material. During the operation itself I think rubber gloves are objectionable, since after a somewhat extended experience I have found them to obtund too much the delicacy of touch which the operator so greatly needs; but this objection does not hold when it comes to closing the incision.)

One serious objection to the closing of the wound in layers is the formation of dead spaces between each layer. Usually no harm whatever results from these spaces, but sometimes an excellent culture medium collects and the slightest infection makes trouble.

A method by which the advantages of the tier suture can be obtained, but without dead spaces and without leaving behind any suture material after it has served its purpose, would seem to meet every requirement.

Of course in cases in which the patient's condition is desperate, the through-and-through suture, being the most speedy, will uniformly be resorted to; and in cases in which drainage must be provided for, other than ideal methods of closure may be necessary, but when the incision is of the ordinary character, when no drainage is necessary, and the abdominal walls present no obstacle, then the method suggested should certainly be employed.

Since June 19, 1897, I have used a method of closing the incision which seems to me to meet all the indications, and which in my hands has, so far as I can learn in something over a thousand cases, given perfect results.* At first I used silver wire, but I soon found that this did not possess the tensile strength to be satisfactorily used in that way, since it would occasionally break during its withdrawal. I therefore sought for some other material and finally selected annealed iron wire, tinned. (This wire comes in various sizes, but I use No. 26. It can be obtained at the hardware stores, and costs 25 cents per box of one dozen spools. I have found this wire equally superior also in wiring bones.) It is strong, flexible, and tough, and is of course sterilized by boiling with the instruments.

In closing an ordinary abdominal incision made in the median line I would call attention to the following:

1. The bellies of both recti muscles are exposed so that they will be brought into direct apposition when the sutures

*This method was first described by me in a little monograph on Operative Gynecology, issued in 1898.

are tightened. While muscular tissue in itself has little power to prevent a hernia, it nevertheless serves as an excellent buffer and keeps the abdominal contents from direct impact against the line of closure of the fascia.

2. Through-and-through silk-worm gut is then introduced, *from within out*, the needle being so introduced as to catch merely the edge of the peritoneum, and then passed well back through the muscle and fascia and out at a suitable distance from the skin margin.

3. The fascia is next brought together by an over-and-over stitch, using a doubled thread of either coarse silk or cotton. This is introduced into the needle so as to give a loop about two feet long. To the end of this loop is attached the wire, which is sharply bent upon itself so as to be readily drawn through the tissues, the loop being used merely as a guide for the easier introduction of the wire. The over-and-over stitch is so passed as to take in about a quarter of an inch of the edge of the fascia, and include no other tissue. It is introduced very loosely so that each turn can be caught later with the finger. As it reaches the end of the incision it is passed from within out through fat and skin so as to make its exit an inch or more above the end of the incision. By means of this guide thread the wire is introduced loosely so that it lies in the wound as a helix, the end of the wire appearing through the skin as the last of the thread is withdrawn. Care should be taken to see that the fascia, which is thus brought together, has been carefully cleaned of fat. This cleaning is best done when making the primary incision and before incising the fascia. By holding the belly of the knife at a suitable angle the fat is easily separated for one-half inch on each side.

4. A handled needle with an eye at the point is then introduced through the skin and fat about an inch from the other end of the incision and brought out just above the fascia so as to engage the other end of the wire, which is then withdrawn. This needle has been previously passed through two pads, about an inch square and made of six or

eight thicknesses of gauze. Before withdrawing the wire from the needle, one of these gauze pads is slipped down over the wire so as to rest next to the skin. The other end of the wire is then threaded through the needle and the other gauze pad placed in position, and a perforated shot placed outside of each pad.

5. The incision is then carefully dried, if there has been any oozing, and while an assistant draws up the ends of the silk-worm gut, so as to secure apposition of the peritoneum throughout, the wire helix is drawn straight by traction with forceps on each end, care being taken to see that no kinks are formed during this process. The wire should be drawn back and forth once or twice so as to be sure that there are no kinks. The perforated shot are now pushed down against the pads and clamped.

6. The fascia is thus held in absolute contact, and the operator can *see* that not a bit of fat or muscular tissue intervenes. The silk-worm gut is then tied in the usual way, care being taken that it is not drawn too tight, as this is probably the most common cause of stitch abscesses. The use of the silk-worm gut precludes any possibility of dead spaces; all the tissues are brought into absolute contact, layer to layer.

In an abdominal wall enormously thickened from a deposit of fat, this method cannot be used, since the pressure of the silk-worm gut would be too great. Here I usually close the peritoneum, including the transverse fascia, with fine catgut; the muscle and fascia in two layers with chromicized catgut No. 1, which will last three or four weeks, and then the skin and fat with through-and-through silk-worm gut, so as to secure good, but not tight, apposition. Gloves are always used in closing incisions in this way. In order to drain the dead space between the fascia and fat, a wick of iodoform gauze wrapped in gutta-percha tissue is introduced. This extends from the upper end of the wound throughout its entire length and is brought out at the lower angle of the incision, this being introduced of course before the silk-worm gut stitches are tightened. Any oozing that

takes place will be carried off by this wick which is withdrawn the next morning.

In cases in which the recti muscles are widely separated no attempt is usually made to bring them together, but extra care is taken to secure apposition of the fascia.

The line of incision is supported by a snug binder of canton flannel, made in the form of a many-tailed bandage. The bandage is so made that each strip overlaps the one below by about one-half its width, and they are stitched together up and down at the back by two lines of stitches several inches apart, so that there is little tendency for the binder to be thrown into folds.

If the case does well the dressings are not removed from over the wound until the tenth day. (The bandage can of course be removed at any time if it becomes soiled.) The dressings are then removed and all sutures withdrawn. The wire having been drawn straight at its introduction, is one of the easiest stitches to withdraw at this time. The gauze pad at one end is caught by the fingers and the wire drawn out a little beyond the skin and cut off. Traction at the other end results in its easy withdrawal. If a stitch-abscess occurs, then the affected stitch is at once withdrawn, and if it seems best one or two on each side, but the wire is not disturbed until the usual time. The bandage is reapplied, and is worn continuously so long as the patient remains in the hospital—usually about three weeks. She is then directed to wear a similar bandage day and night for one month, except as it is removed for bathing, and then to wear it during the day for still a second month. At the end of that time, about three months altogether, she is directed to discard it entirely. Experiments upon animals have shown that healing is complete at the end of three months. To wear a bandage longer than this time is therefore unnecessary, while the weakening of muscles, as the result of prolonged support, is undesirable. The use of the bandage is simply to support the parts during the healing process so that they may not be separated by any sudden strain or effort.

If other surgeons have used this method before the date mentioned I have no knowledge of such fact. I know of a number of surgeons who are using this method now, having seen it employed in my clinic. I have not undertaken to trace up all the patients upon whom I have used it, but as I have heard from the usual number of post-operative hernias in which I had closed the incision by other methods, I believe that I would have heard from some hernias resulting from this method if many of them had resulted. Moreover, with few exceptions, the patients operated upon have not been of the class which drifts around from hospital to hospital, as in the large eastern clinics, but have been almost entirely what would be called private patients.

DISCUSSION

Dr Rufus B. Hall, Cincinnati: Like the preceding speaker, I believe that all operators are greatly interested in a method for closing abdominal incisions which will prevent hernia. I want to commend the essayist's method as the method *par excellence* in preventing hernia in abdominal operations. In cases in which the patient recovers without stitch-hole abscesses, or a drop of pus, we ought to be able to have a minimum percentage of hernias. Dr Baldwin will perhaps remember a conversation he had with me in his operating room about 1897 in reference to closing abdominal incisions with the wire by this method. I was using silver wire at that time. He asked me if I had used silver wire in this manner and I told him that I had not but that I was using a silk-worm gut at that time. I tried silver wire for a while, using it exactly as he uses the iron wire, but I had trouble with the wire breaking when putting it in and getting it out. I then substituted for the wire two strands of silk-worm gut, using them exactly as he does the iron wire, fastening them somewhat similar at the ends. I also coapt the fascia exactly as he does. I think you can finish the operation a little bit quicker by my method of using the silk-worm gut. Like the preceding speaker, I cannot always prevent hernia. I have been using this method just as the essayist narrates it, using the silk-worm gut instead of the iron wire, in almost all cases since 1897. I have had a number of hernias following this operation. Just three or four

days ago a patient upon whom I operated three years ago, removing a fairly large fibroid tumor, came to me with something wrong in her abdomen. She said that she had a little lump. I examined her and found a good sized ventral hernia. In this case there was never a drop of pus or a stitch-hole abscess. In another case, a hernia developed in a very fat woman after the removal of a large ovarian tumor. The incision was closed in exactly the same way, the facia coming nicely together, but nevertheless she came back to me a short time ago with a hernia. The operation was performed about three years ago. I do not believe that with any known method of closing abdominal incisions we can say that a patient will not have hernia develop. If the wound closes without pus there may be weak abdominal walls and they will develop hernia just the same as a woman will develop hernia who has never been operated upon. I believe up to the present time the method advocated by the essayist to be the best method of closing abdominal incisions.

Dr F. F. Lawrence, Columbus: The method advocated by the essayist is certainly an ingenious one of suturing abdominal wounds. I believe, however, that there are factors in the prevention of post-operative hernia equally as important as securing perfect coaptation of tissues, strict attention to which will do as much, if not more, than any particular method of suturing.

One of the essentials of perfect union is a minimum of foreign substance in the wound. This is a point in which *all layer suturing fails.*

One of the things frequently lost sight of is that we sometimes fail to secure good union because of the bruising and pressure exerted on the tissues by retractors, particularly if the operation be a long one.

Another thing, sutures are frequently retained in position too long, or sufficiently long to cause more or less tissue atrophy of the muscular fibers which have been more or less injured by the operation.

Another potent factor in the production of post-operative hernia is permitting the patient to assume an erect position too soon after an operation. The new tissue formed in the line of union is practically embryonic and cannot be expected to be sufficiently organized to withstand the pressure incident to the erect position in 10 to 12 days after operation, and I doubt if it is wise for them to do this under

three or more weeks. Another factor is that sutures by being tied too tightly may cause stitch abscesses which weaken the walls and by a continuous pressure on the muscular fibers cause their atrophy to a very marked degree. If we are careful to observe a strict asepsis, avoid the use of retractors, tie our stitches snugly but not tightly, remove stitches not later than seven days and require our patient to remain recumbent not less than two weeks and then give them the support of a properly constructed abdominal belt until such time as the wound has become firmly organized, we will do more to prevent post-operative hernia than we will by any particular method of suturing.

Dr B. Merrill Ricketts, Cincinnati: This subject is of great interest to us all as operators. We may have hernia from abdominal sections for various purposes, and there are a number of factors involved here. One is a division of nerves, and another is the cutting of blood-vessels. It is impossible for any operator to prevent hernias. We have anomalies in the distribution of the blood-vessels and nerves, and we sometimes divide them and the tissues suffer in consequence. For that reason muscle-splitting is adopted by many surgeons, and it is very satisfactory.

One gentleman speaks about patients getting up too soon. Bassini has his patients get out of bed following a herniotomy on the eighth day, and if a patient can do that following operations for hernia he can certainly do it after other abdominal operations. The method suggested by the essayist today is certainly unique, and one which I saw Dr Senn make 10 years ago. The peritoneum was sutured with catgut, and then the through-and-through silk-worm gut sutures were employed. It is very important that the peritoneum should be carefully sutured. I made an operation in Lima, an abdominal section, for an ovarian cyst three years ago, and at that time I used the through-and-through sutures. About two years afterward she died from strangulation. An autopsy revealed that a piece of omentum became adherent to a point on the peritoneum which had not been coapted, and the gut had slipped through and became strangulated. In experimental work on animals I have found the bowel adherent to the peritoneum, but when we open the abdomen of human beings we have a very different state of affairs. In many cases we have adhesions of the omentum to the gut in that portion of the peritoneal cavity which has not been

properly coapted. I have used the through-and-through suture, I have had hernias following infected and noninfected wounds, and I do not know of any method to employ which will enable us to say that we will not have hernias following abdominal section.

Dr J. F. Baldwin, Columbus, closing discussion: The method of suturing described in my paper is, so far as I know, unquestionably original, and in my own hands, and in that of others who have used it, it certainly seems to prevent hernias. In the use of this method we secure accurate apposition of the fascia, and also of the other tissues. Senn, as stated by Dr Ricketts, may have used a method somewhat similar to this, but it is different in important details. Other surgeons have tried to accomplish the same thing by the use of buried sutures, using silver wire which is left in; but in my method everything is withdrawn. Before using the wire I tried silk-worm gut and it served fairly well, but it is too short to use in a long incision. It also, as stated in the paper, tends to become rough in the tissues, and is not withdrawn with anything like the same ease as the iron wire.

An important point, which I will incorporate in my paper, but which I omitted because of the time limit, is that it is important to carefully clean the fat from the fascia. In cutting down through the tissues, when I reach the fascia I am careful not to incise it until, with the edge of the knife turned a little, I clean off the fat from the upper surface. After the fascia is cut its under surface is separated for a sufficient distance, and then when the two are brought together there is perfect apposition.

I am in the habit of allowing patients to sit up in two weeks after the operation; that is, they are propped up in bed, and then two or three days later they are allowed to sit up in a chair. They usually return home in three or three and a half weeks. Wyeth, of New York, I have seen it stated, keeps his abdominal section patients on their backs for six weeks. That, it seems to me, is cruelty to animals, and is entirely unnecessary unless one uses the ordinary methods of closing the incision, when it may be advisable to thus prolong the recumbent position.

I do not believe the proper use of retractors does any harm to the tissues. If we try to do too much work with a narrow retractor, then there will be some bruising of the

tissues and some harm will result, but if a broad one is used the tissues will not be injured.

The place in which the abdominal incision is made is usually in the median line, and in that locality there are no nerve trunks or blood-vessels to be cut, so that this does not play a rôle in the causation of the hernia.

This method of closure secures as perfect apposition of the peritoneum as we can get without suturing it by itself, which I do, as I said, in occasional cases, using fine catgut. I do not, however, owing to the danger of infection in using catgut, like to use it unless obliged to do so. Infected catgut, especially in the deep tissues, will result disastrously ten-fold more frequently than possible adhesions of the omentum.

While preparing this paper I was told by a prominent Columbus physician, who had sent me a number of abdominal cases, that he knew of two of his patients that had hernias following an operation which I had made. I asked him for their names, so that I could verify from my notes the methods which I had used in effecting a closure, but when he came to look the matter up he found that both these patients had, for personal reasons of their own, been operated upon by another surgeon who uses the through-and-through suture.

It takes very little longer to use this than to close by the ordinary method. It can be done more quickly than closing the incision in tiers with catgut. The supplementary silk-worm gut stitches do not have to be placed very close together, they may be placed three-quarters of an inch apart, and when tied should be brought together rather loosely. It is the tight suture which gives us the stitch abscess.

In tying the silk-worm gut, instead of making a single turn I make two turns, as in a surgeon's knot, and then two turns again in reverse, so as to keep it from slipping. This forms a splint across the incision, and does not press the parts together so tightly.

The Conservative Treatment of Knee-Joint Infections

BY HORACE J. WHITACRE, M. D., CINCINNATI

The infections of the peritoneal cavity are well understood, and their treatment has been reduced to a condition of almost scientific accuracy. A fair understanding of the principles of bacteriology and the surgical methods of circumscribing bacterial invasion have made it possible for the surgeon to open the peritoneal cavity with safety, and to promptly establish conditions favorable to the forces of vital resistance.

These same principles of aseptic surgery that have made it possible for the surgeon to invade the peritoneal cavity have revolutionized the treatment of the joint cavities of the body. It is now an accepted fact that a joint can be opened with just as much safety as the peritoneal cavity. It has furthermore been demonstrated that the prompt and efficient operative treatment of infections of joints will give the same good results that have been obtained in the peritoneal cavity.

These, I say, are accepted facts, yet they are not practiced facts. I am satisfied that a timidity still exists even among surgeons in the invasion of joints that their better judgment tells them should be opened. I am certain that the general practician too often postpones surgical consultation or exploratory puncture beyond the stage of joint destruction. The early treatment of joint infections by free irrigation or drainage will give results that are surprising,—it will give moveable joints,—and it will give useful joints.

The curse of articular disease is that of phantom-rheumatism. More ignorance seeks shelter under the protecting haze of this magic and to the layman all satisfying word, and more life-long disability has resulted from such practice than can be placed to the credit of that other mantle of ignorance, a touch of malaria. There is scarcely a physician who does not know of some one or more cases of joint trouble which have been treated month after month for rheumatism, and

until burrowing pockets of pus, tubercular or pyogenic, have riddled the surrounding tissues, and broken externally to form persistent sinuses.

The cases of this sort that apply to a large surgical hospital for treatment are legions. The results of surgical treatment applied to joints that have reached this stage of destruction are disappointing to the patient, to the friends, and to the surgeon. Functional results are impossible to the surgical pathologist.

It has seemed to the writer that this is a neglected subject in medical society work, and one that should be more often discussed in representative bodies of this sort. It is the purpose of this paper to present certain general principles of treatment in joint lesions which the writer believes to be valuable.

In general, a conservative line of treatment would, according to the Century Dictionary, be one which is preservative; one having power or tendency to preserve in a safe or entire shape; one which protects from loss, waste or injury. The term conservative is too often employed in medicine as a synonym for the nonoperative treatment of surgical diseases, whereas it should in reality have the opposite application in a certain very large percentage of cases.

That which conserves most in a bleeding artery is to cut down and tie the vessel, in a felon to lay the finger wide open, in suppurative nephritis to expose and split the kidney from end to end.

To the author's mind there is no one site in the human body which better illustrates the meaning of this word "conservative" than the joints. A joint is an anatomic structure which is arranged for the connection of the various bones of the skeleton. The knee-joint consists of the expanded ends of two bones accurately moulded to meet the requirements of a combined hinge and arthrodial joint. The surfaces of these bones are covered by beautifully moulded articular cartilages. The bones are held together by a most complex system of external and inte

ligaments, and the entire interior of the joint is covered by a delicate, shining, synovial membrane which secretes the most perfect lubricating fluid. Every anatomic element in this complex mechanism is essential to the physiologic integrity of this joint and every anatomic element must be conserved to the very utmost when this joint becomes diseased. A single line of conservative treatment cannot be fixed upon for such an anatomic structure. The particular form of conservatism that must be practiced will be determined entirely by the nature of the pathologic lesion present. Conservatism will at one time mean "hands off"; again it will mean simple aspiration, sometimes aspiration and antiseptic irrigation through cannulas, or perhaps it will mean an incision from one condyle to the other which will lay widely open the joint and quadriceps bursa.

The all-important consideration is to save the functional value of the joint, and we should study how best to accomplish this end. The question is at once reduced to a pathologic basis. We must first learn exactly what anatomic change to expect in a given lesion, then we must apply that method of treatment which will most promptly arrest this process. It will serve the purposes of this paper to divide the lesions of the knee-joint as follows:

1. Simple synovial inflammations that are usually not destructive.
2. Subacute infections by the gonococcus and tubercle bacillus.
3. Acute pyogenic infections of the closed joints.
4. Lacerated wounds opening into the knee-joint.

SIMPLE SYNOVIAL INFLAMMATIONS

The simple synovial inflammations result (1) from mechanic causes, such as a blow, a sprain or a floating cartilage. (2) From chemic causes, such as bacterial toxins in septicemia, diphtheria and scarlet fever. (3) From direct infections by bacteria which do not usually cause a destructive inflammation.

When a floating cartilage is caught between the articular surfaces of the knee-joint a reaction occurs in the synovial membrane which is a pure example of a simple inflammation of mechanic origin. The synovial membrane alone is inflamed, yet perfectly intact, and more synovial fluid is secreted than is normal. The joint becomes distended with fluid, and gives the usual symptoms of inflammation. The removal of the cause in this as in any other form of mechanic inflammation will result in a complete cure of the condition. This can be done by placing the patient in bed and by immobilizing the joint.

A plaster of Paris encasing the splint will usually give the most satisfactory immobilization unless it is thought wise to make hot or cold applications to the joint. In this event a well-padded and well-applied board splint, a posterior strap-splint of plaster of Paris, or an interrupted plaster encasing cast will serve the purpose. It seems unnecessary to do anything more for this type of synovitis.

The pathology of the second variety of mild reactionary inflammations does not seem so clear. It is a well-known fact that patients suffering from septicemia, or septic intoxication, very often present symptoms of an acute inflammation in certain joints, which, however does not go on to suppuration. The joint becomes painful, reddened, sometimes much swollen and its functional value is impaired or lost. This inflammation subsides promptly, and the joint returns to normal. It is possible to explain this lesion in two ways; either as a chemic inflammation resulting from the concentration of bacterial toxins in these particular tissues, or as a mild infection by the bacteria themselves which is overcome by the forces of vital resistance.

It has seemed to the writer that a chemic irritation is the most rational explanation of the transient forms of joint inflammation, yet the possibility of bacterial infection and metastatic abscess should be constantly borne in mind.

The treatment of such a joint will divide itself naturally into two parts, the local and the general. The joint must

completely immobilized, and hot or cold applications of aluminium acetate or other wet dressing applied. The general treatment will be directed to the primary source of infection and to the elimination of the toxin contained in the blood.

The third variety of simple synovial inflammations are those that result from the infection of a joint by bacteria and which usually do not cause a destructive inflammation. Such inflammations occur in articular rheumatism and in the mild infections by the gonococcus. The gonorrheal form of infection alone will be considered. The author has repeatedly treated cases of monarticular "rheumatism," occurring during the course of a posterior urethritis, which begin with slight lameness, some pain, no redness and usually a joint effusion. The patient usually consults his physician one, two or three days after the onset of the trouble. The application of a plaster of Paris splint, rest in bed and the administration of urotropin have regularly caused the joint inflammation to subside and these patients have regained a perfect knee-joint. The lesion in these cases is undoubtedly a serous synovitis which has resulted from a mild infection by the gonococcus and which the forces of vital resistance have been competent to overcome under favorable conditions.

We have thus far considered three conditions,—traumatic synovitis, chemic synovitis and mild bacterial infection of certain forms, in which the rational and the conservative treatment is rest alone.

SUBACUTE INFECTIONS BY THE GONOCOCCUS OR TUBERCLE BACILLUS

A certain percentage of knee-joints that are infected by the gonococcus do not follow the mild course that has been described above.

When an infection is more severe or the infecting diplococcus more virulent than in these mild cases, the effusion into the joint takes place more rapidly and this effusion becomes purulent. There is an involvement of the articular cartilages, and the periarticular tissues. All of the local symptoms become severe, and mild or severe constitutional

symptoms are added. Immobilization and antirheumatic remedies fail to influence either the local or the constitutional symptoms. Instead of a lesion limited to the synovial membrane, we now have an articular lesion, one which involves the articular structures and one which will destroy them. Now there is a period in the course of every such inflammation when timely treatment of the proper sort will save such a joint. This period is a very early one in the course of the disease and must be coincident with the period of pus formation. When the articular cartilages become involved, and the glistening joint-surface destroyed, adhesions and joint-impairment are inevitable.

The first question that arises is as to how we are to know when pus has begun to form. The answer must certainly be to aspirate. If this is done under absolute surgical rule the introduction of a needle into a joint is a perfectly safe procedure and can only result in good. If any detail of surgical precaution is neglected, then this and every other operation of surgery becomes extremely dangerous and the careless man will do well not to attempt it.

Preparatory to aspiration the skin should be scrubbed, first with green soap and water, then with alcohol and finally with bichlorid 1 to 1,000. A working antitoxin syringe with a needle somewhat larger and longer than the ordinary hypodermic needle, and a scalpel should be boiled. The hands should be prepared for surgical procedure. A minute incision is made through the skin alone, at one side of, and posterior to the patella and the needle is inserted into the joint through this incision. Should the small needle fail a larger should be attached. When pus is found a large needle or cannula should be inserted into the joint at once at the site of the first puncture and a larger cannula from the opposite side of the patella. All pus should be drained off and the joint washed with two to six quarts of normal salt solution. When this solution runs away perfectly clear, three to six ounces of 5% carbolic acid should be injected in such manner as to distend the joint and this should be allowed to rem

from two to five minutes. The carbolic solution is now thoroughly washed away by salt solution, the cannulas are withdrawn, the knee is dressed aseptically and a plaster of Paris splint applied. This operation should usually be done under ether anesthesia but may be done with cocain.

The pus will usually not reaccumulate, both local and constitutional symptoms will subside and the splint may be removed in one week. Physiologic motion should be practiced early and continued unless unfavorable symptoms arise. The ultimate results will vary with the degree of articular destruction that had already occurred before irrigation and may be perfect.

Should pus reform and the constitutional symptoms persist, a second irrigation may be practiced, but a second recurrence will call for free drainage by liberal incision and rubber drainage-tubes.

Such conservative treatment by irrigation will restore many gonorrheal joints to their full physiologic value, it will give partially useful or stiff joints to other patients, who formerly lost the extremity by amputation, and it saves the patient both suffering and enforced absence from work.

The subject of tubercular infection of joints cannot be discussed in the present paper, even though it properly belongs among the joint infections. Suffice it to say, articular tuberculosis is always a local disease and that there must be a time in the course of any given lesion when this disease is narrowly circumscribed. The treatment of tubercular joints by immobilizing has certainly failed to give me good results. I have seen patients in the very early stages of this disease who seemed to be perfect subjects for treatment by immobilization, yet after six months of such treatment these patients have returned to me with an extensive joint lesion or with sinuses. On the other hand I have treated early cases of joint tuberculosis by prompt clean excision of the tubercular focus, then immobilized the joint and obtained most satisfactory results. An aseptic operation which preserves the important anatomic srtuctures will not seriously impair the

efficiency of a joint, and the removal of a tubercular focus *en masse* will certainly lighten the burden of repair exceedingly.

ACUTE PYOGENIC INFECTION OF CLOSED JOINTS

When an arthritis results from an acute streptococcus or staphylococcus infection, all of the pathologic conditions that have been described under the head of suppurative gonorrheal arthritis are presented in a much intensified form. The process of destruction advances rapidly and the constitutional symptoms are severe. Conservatism in the treatment of a joint of this variety means drainage at the very earliest possible moment. Uncertainty as to the type of infection present may justify a trial aspiration and irrigation through two cannulas as has been described above. Should this fail to give prompt relief to both local and constitutional symptoms, however, two to six free incisions should be made into the joint cavity and free drainage established. Should simple lateral incisions fail or seem inefficient in the severe streptococcus infections the joint should be opened widely by a transverse incision, the crucial ligaments divided, and a wet dressing applied, with the knee in a flexed position. When the acute inflammation has subsided (three to four days) the leg should be straightened. The treatment of a joint by this method requires the greatest patience on the part of both surgeon and patient, and a stiff joint invariably results, yet the patient is left with an extremity which is vastly superior to any artificial limb that can be constructed.

LACERATED WOUNDS OPENING INTO THE KNEE-JOINT

When a knee-joint is opened in a machine, a railroad or other accident, the infection of this cavity is almost inevitable and such wounds should be treated as infected wounds from the start. There is no section of joint surgery, however, which presents more difficult problems in treatment and none in which it is more necessary to meet the indications in the individual case.

The treatment of machine injuries of the knee-joint ma

be well presented by the following report of a case. A boy six years of age fell from a moving ice-wagon, and a wheel passed over the angle of the flexed knee. The patella and the soft parts on the front of the knee were crushed and torn away, and the joint cavity was left wide open. Fragments of clothing and the dust of the street had been ground into the joint. This patient was taken to the hospital, and the entire extremity was thoroughly sterilized and the wound was washed as thoroughly as possible, with large amounts of sterile salt solution. Fragments of devitalized tissue were trimmed away, a voluminous wet dressing of aluminium acetate was applied and the leg placed on a pillow.

On the following day the patella was removed and a splint applied with the knee somewhat flexed. There was a moderate degree of infection in both the wound and the joint cavity, and a rather sharp constitutional reaction, yet the treatment by wet dressings was continued. These symptoms subsided after a few days, and an interrupted plaster of Paris splint was applied. This patient had a prolonged convalescence, his extensive wound healed by granulation, and a valuable extremity has been preserved even though the knee is stiff. This is but a single illustrative case from which we may conclude that the rational treatment of infected wounds of the knee-joint must be based on the same general principles that have been advocated throughout this paper. Here, as in the case of an infection in a closed joint, the greatest possible conservatism may mean to lay a joint more widely open. Conservatism certainly always means to preserve the joint if at all possible, and not to amputate, because a joint is involved in a crushing or a lacerated wound, and may become infected, or because the joint as such has been destroyed. Infection in a joint can be controled with the same certainty that it can be controled elsewhere.

The conclusions which it has been my wish to justify in the discussion of this subject are:

(1) Clearer pictures of the pathology of joints must be formed in the minds of practicians of medicine and surgery.

(2) The diagnosis of rheumatism is too often the refuge of ignorance.

(3) A more prompt recognition of the true lesion within a joint will save much tissue and many joints.

(4) Early exploratory puncture of joints is a safe procedure and an imperative duty of the physician when in doubt.

(5) Immobilization is the most important therapeutic agent that we possess in the treatment of joints.

(6) When pus or a seropurulent fluid is found in a joint, this fluid should be promptly removed by mechanic means.

(7) A purulent gonorrheal synovitis or arthritis should be treated by aspiration through cannulas and free irrigation of the joint cavity.

(8) Streptococcus or staphylococcus infection of a knee-joint should be treated by free incision and drainage at the earliest possible moment.

(9) The opening of a knee-joint in a dirty machine injury does not justify amputation of the leg.

Simple Cyst of the Kidney, Diagnosis and Treatment, with Report of Two Cases

BY JOSEPH F. FOX, M. D., TOLEDO

In selecting the subject of simple cyst of the kidney for my paper today, it is not my intention to attempt to give anything new or original, but simply to present as nearly as I am capable, the present view of the profession on this somewhat rare affliction, and to report the result of the two cases which came under my care for treatment.

Simple cysts should not be confounded with other cysts and more frequently met-with tumors of the kidney, such as the small cyst so frequently found in the granular kidney, nor the cystic degeneration, when the organ is converted into numerous cysts found congenitally or in adults. Thi

condition is usually bilateral and not amenable to surgical treatment.

Cystic distension of the whole organ which results from obstruction in the ureter, usually known as hydroulphosis, may lead one into error, as well as the porauephric cyst, which develops in the tissue immediately surrounding the kidney, and at times forms a connection with it, and also the rare form known as hydadit cvst.

The simple cysts are found as a thin-walled globular tumor of varying size, containing a pale straw-colored fluid of low specific gravity, and frequently contains a considerable amount of albumin, and is occasionally mixed with blood. It is claimed also that the contents are rarely thick or of a consistency of jelly.

These cysts are harmful only when they attain to large size, and by pressure cause atrophy of the proper renal tissue as well as to interfere with health from their bulk. Morris says: "Probably not one-fourth of them reach to a size large enough to attract attention during life; and not one-third could be detected if deliberately sought for by palpation."

The origin of these cysts seems to be uncertain. Some observers claim they are caused by obstruction of the urinferous tubule, or by a constriction around the neck of the capsule of Bowman, while others claim that they may arise from the conversion of the cellular layer in the Malpighian corpuscles into serous cysts, or from the dilation of tubes or Malpighian capsules. They are met with in any part of the organ and upon either surface, but are more frequently situated at one end or the other of the kidney.

These cysts vary in size, from that of an orange, and even much smaller, to that of a large sized ovarian cyst. In cases in which the cyst projects from the middle of the convex border of the kidney, and has attained a great size by its pressure, both the cortical and pyramidal portions are destroyed, and the cyst extends to the renal pelvis, but does not open into it, being separated simply by the thin wall of the cyst. A small portion of renal tissue may be left at the

top or bottom of the kidney which is normal in function and appearance.

It is claimed by some writers that the large simple cysts are far more frequent in women than in men. Tuffier gives the proportion of twenty to three. They occur in either kidney alike, but it is very rare that they occur bilaterally. In this respect they differ from the cystic degeneration which is practically always bilateral.

Persons in middle and advanced life are those usually afflicted. It is very probable that these cysts are caused by a local obstruction in the tubule in which they originate. Whatever may be the cause or nature of the obstruction, we know that the contents of these cysts may be chemically alike. In looking over the literature on this subject I have been unable to discover a case in which the fluid withdrawn resembled urine in any particular.

When a single capsule or tubule is obstructed originally, the secretion accumulates behind the obstruction and gradually distends it, finally transforming it into a thin-walled cyst. This may form the renal cyst, which is of slow growth. This is the condition in the majority of cases. We have some cysts, on the contrary, which grow extremely rapid. It is barely probable that in these cases several tubules are obstructed and that the resulting cysts break into each other, expanding as a single cavity and growing more rapidly in proportion to the secreting surface exposed by the original obstruction.

The symptoms accompanying a renal cyst are very slight in the beginning. As the tumor grows larger, so it can be detected by the patient, pain becomes more severe, usually of a dull aching character, and gives rise to a sensation of weight limited to the loin, especially after much exertion. The general symptoms are sickness after taking food, rheumatic pains, weakness and inability to work; cardiac weakness and dropsy of the lower extremities have also been noticed. Emaciation, increasing debility and finally great prostration may mark the growth of a cyst to a large size.

Morris says: "The urine usually remains regular in quantity and normal in amount."

The diagnosis in the early stages of renal cysts is as a general rule easy. The renal swelling fills one flank, and extends forward in the subperitoneal connective tissue, carrying the peritoneum forward; this accounts for the fixity and immobility of the tumor, and for the dulness of percussion in the loin. At the same time the ascending or descending colon, according as the tumor may be right or left-sided, is pushed forward and is found coursing over the front of the tumor. Usually the colonic tympany can be demonstrated in all cases with sufficient accuracy to enable one to become reasonably certain that the tumor is located posterior to the colon, and in this manner make a differential diagnosis between the cyst of the kidney and one of the liver, spleen or omentum. In the latter cases, it would be always anterior to the colon.

When the cyst occurs in a displaced kidney in a case in which the organ may be located anywhere within the abdominal cavity, the development of a renal cyst under such circumstances would render recognition of the true condition extremely difficult. Still more improbable would it be to arrive at a correct diagnosis when the cyst has reached a size which fills the entire abdominal cavity.

The numerous mistakes recorded, which have occurred in connection with the differentiation between large renal cysts and other cystic tumors of the abdomen, are sufficient proof of the difficulty which is encountered.

The treatment by puncture, which has been much advocated in the past in connection with the treatment of cysts of the kidney, is rapidly coming into disfavor. It is an *unsurgical* procedure, and is liable to lead to very dangerous infection.

In cases in which the cyst is not very large, it may be removed by a lumbar incision preferably, and when the greatest portion of the kidney remains healthy, the cyst may be dissected away, and the freshly-cut surface in the organ

closed by suture. Another plan recommended by Morris is to stitch the closely-trimmed walls of the cyst into the lumbar incision and drain, after the secreting surface of the remaining cyst-wall has been destroyed by pure carbolic or nitric acid.

A partial nephrectomy may also be done by the lumbar incision in cases in which a portion of healthy kidney can be saved.

Primary nephrectomy is only indicated when the cyst is of great size, and has by pressure practically destroyed the entire kidney, or in case the remaining portion of the organ is hopelessly diseased. The operation is better accomplished, I think, when the cyst is very large, by opening the abdomen.

I wish to report briefly two cases which came under my observation:

Case I: Mrs B. presented herself for examination at my office on August 24, 1895. The patient was 44 years of age and had had seven children. The youngest child, two years old, had always enjoyed good health, and led a very active life. About one year ago she noticed a growth in her abdomen which enlarged quite rapidly, and was now giving her much pain and a sensation of a weight and dragging on slight exertion, accompanied by a great deal of prostration and weakness. Examination revealed the abdomen distended to about the size of a seven months' pregnancy, by a globular cystic tumor. The patient declared when she first noticed the tumor that it was located as now, low down in the abdomen and slightly to her right. A vaginal examination showed that the pelvic organs were normal, and I felt satisfied that they were not involved in the growth, although the mass could be distinctly felt through the vagina. The temperature and the urine were normal.

No tympany of the colon could be detected, the tumor lay closely against the right side of her abdomen, and in its enlargement gradually encroached in the direction of the median line, crowding away the colon and the small intestines. The tumor had obtained to such size when it was no longer covered by the colon, and percussion revealed simply the dull note of its liquid contents.

A diagnosis of a probable cyst of the right kidney, or of the omentum, was made, and an operation for its removal was advised. The patient was anxious to obtain relief. She was operated upon three weeks later.

The abdomen was opened in the median line on learning that the cyst was one of the kidney, with nearly the entire organ destroyed by pressure from the tumor. On examination of the left kidney, with my hand in the abdomen, it was found to be in normal position and in a healthy condition, as far as could be ascertained by manual palpation; also the previous examination of the urine showed it to be normal. Since the diseased kidney had been almost entirely destroyed, the urinary function was mainly performed by the left kidney. I reasoned that the system would not be robbed much by the loss of the remaining two small remnants of the right kidney.

After tapping the cyst and withdrawing about three quarts of a pale fluid, the organ was removed without any difficulty. Examination of the specimen showed that the tumor had destroyed the entire kidney tissue down to the pelvis, simply a small portion of it remaining at the two extremities of the organ.

I want also to mention the fact that a small sack was discovered in the pelvis of the kidney resting against the tumor, which contained about one ounce of pus. The patient made a splendid recovery, at no time manifesting any urinary symptoms. As a further proof of her good condition, she gave birth to a child at full term two years after this operation, and has since remained in good health.

Case II: Mrs Z. was seen in consultation with Dr G. on November 23, 1898. The patient was 70 years of age. At the time of my examination she was confined to her bed, was extremely emaciated and weak and was suffering with dropsy of both lower extremities; her appetite was poor and she slept badly.

An examination revealed a cystic tumor in the right loin, nearly the size of an adult head. The colonic tympany could not be demonstrated on account of its size as the tumor had crowded the colon toward the median line. The tumor was noticed by the patient for nearly one year. It was enlarging quite rapidly, causing her much pain and a sensation of weight in her side. A diagnosis of cystic tumor of the right kidney was made. On account of her age and extreme weak-

ness, I did not feel justified in advising operative interference, and therefore recommended palliative measures.

Before leaving my patient, she exacted a promise from me that I would operate on her, in case she would not be satisfied with the result of the treatment outlined. Scarcely one week had elapsed when I received a message from her attending physician stating she was very anxious for relief, and wanted an operation. Accordingly on December 3, after fully explaining to her and her family the risk in the undertaking, the operation was done.

The incision was made over the prominence of the tumor, somewhat to her right. After evacuating about two quarts of a straw-colored fluid, it could be ascertained that the kidney was almost entirely destroyed. Similar to the case just reported, the kidney with the cyst was removed. The operation was not lengthy, and the patient lost very little blood. After about 12 hours' struggle against shock the patient began to rally, and made a perfect recovery. I saw her again about one year and a half later and found her the picture of health, weighing 130 pounds. Her weight at the time of operation had been reduced to 80 pounds. Very recently I had a letter from her physician stating that she is still living, now 75 years old, and enjoying splendid health.

CHAPTER IV—LEGAL MEDICINE

The Malpractice Laws of Ohio

BY WILLIAM J. GILLETTE, M. D., TOLEDO

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The discussion of matters of this kind is usually left to our legal brethren, but have we not in the past delegated to them too much authority in this respect? Is it not possible that if the physicians of Ohio were to become more actively identified as an organized body with its politics,—especially in the selection of our judiciary,—that many malpractice suits, often nothing more or less than instances of legalized blackmail, would never be brought to trial?

At the last meeting of this Association, in a paper read before it by an eminent legal gentleman, the following advice was given us: "To an enlightened bar, and to the wisdom and honesty of the bench, you can safely trust the highest interests of your personal and professional welfare." This sounds well, but to a physician who has been subjected to much expense, trouble and vexation of spirit in defending a malpractice suit that has traveled from the lowest to the highest court of our State and back again, and the termination of which suit is, like the ways of the Lord, past finding out; to such a physician, this advice given us a year ago, reminds one strongly of "sounding brass."

"The grass-hopper on the drag preaches patience to the toad," but the toad and the doctor underneath know full well where each harrow tooth goes.

He who has had the misfortune to be drawn into a malpractice suit learns many things. For one, he learns that his is not the only profession not entirely made up of honest men: that even in the legal profession quacks or pettifoggers

creep in, and sometimes rise to places of high judicial authority. He learns for another, in the matter of the interpretation of the law, to appreciate the full force of the poet's statement that "Things are not what they seem;" that "English as she is writ" in statutes and judicial opinions does not always mean that which to the lay mind would seem obvious; and further, that there are members of his profession, but only a few, God be praised, who, though ignorant and degenerate, under the guiding intelligence of an unscrupulous and pettifogging lawyer, will attempt and for a time seemingly frustrate the administration of justice.

But while learning these most disagreeable lessons he is also taught to appreciate more than before the true loyalty and friendship of his fellow physicians, who willingly, nay eagerly, sacrifice time and money to aid him in his hour of need. He learns also that, like the medical profession, the bench and bar is largely composed of honorable upright and able men; men, who for the most part, are free from prejudice; who realize the difficulties that beset the practice of medicine, and who seem glad and willing to assist us to the extent of their ability over these rough places.

The statutes affecting the question of malpractice in Ohio are few in number. The first one fixes the time within which actions or suits against physicians for malpractice should be begun, was passed in 1804, and the limitation was six years; later, it seems to have been fixed at four years. In 1853 a law was passed providing that "An action for an injury to the rights of the plaintiff not arising on contract, and not hereinafter enumerated" should be brought within four years. For 40 years this was the statute under which actions against physicians and surgeons for negligent or unskilful treatment had to be brought, as the word "malpractice" had not then appeared in any of the statutes of limitation of Ohio.

In the year 1894, however, and largely through the efforts of Dr William Cherry of Toledo, another then existing statute was so amended as to read as follows: "Within

one year an action for libel, slander, assault, battery, malicious prosecution, false imprisonment, or malpractice" must be brought; and since that time actions for alleged malpractice must be instituted within one year from the time when the cause of action accrues. The trouble now is to determine just when the cause of action does accrue. By that I mean the exact time when the patient has a legal right to bring suit against his physician for alleged negligent or unskilful practice; and upon this point the various courts of Ohio do not seem to be in exact accord, either with each other, or with themselves. In deciding a case in which I was, unfortunately, the defendant, in July, 1901, the Circuit Court of Lucas County laid down the following rule: "The duty of a physician and surgeon to continue in attendance upon a patient after the performance of a surgical operation until the person is cured of the operation, or until his services are no longer required, is as encumbent upon him as the duty of exercising ordinary care and skill in the actual performance of the operation, and an action for malpractice does not accrue against him until the cure has been effected, or until his attendance is no longer necessary." As we were not satisfied with this decision we took the case to the Supreme Court. In order to reverse it, it was necessary to convince four of the six Supreme judges of the soundness and legality of our contention. This, however, we were unable to do, only three holding in our favor. Thus by an evenly divided Supreme Court—three to three—this decision of the Circuit Court was allowed to stand as the law of the State of Ohio upon this subject. However, the three members who voted to sustain the Circuit Court put their reason for so doing upon a somewhat different ground than did the Circuit judges; but as to the question of the time when the statute of limitations begins to run, the two courts are practically in accord, although I am told by able lawyers that in this both courts depart from prior decisions in this State, and from the established law in the country at large, as laid down by the Supreme Court of the United States.

While an action for malpractice must be brought within one year after the cause for action accrues, this holding of the Ohio Supreme Court decides that the cause of action does not accrue at the time of the alleged unskilfulness of treatment or operation and not until the patient's case has been abandoned after due notice given by the physician, or until the professional relation has been otherwise terminated.

The judges of the Supreme Court voting to uphold this doctrine as the law were Chief Justice Burket and Justices Price and Spear; the three who voted to make the law of Ohio upon this point the same as that of her sister States and of the United States, who voted to make the malpractice laws of Ohio no more burdensome to physicians than the demands of public safety require were Justices Davis, Shauck and Crew. Judge Davis delivered their dissenting opinion, which I should like to give you entire, but lack of time forbids. I will, however, quote three short sentences from it, *viz:* "Hence the Circuit Court was driven to its invention of 'a continuing act of negligence' which for its novelty would be patentable if it were not entirely useless."

"I have diligently sought for authority for this strange doctrine, and have not found any; and have carefully examined all the cases cited in the foregoing opinion with no better result.

"The theory involved in the misleading phrases 'a continuing negligence,' 'a continuing wrong,' 'a continuing obligation,' is not only contrary to all authority but from my point of view it is utterly absurd when tested in the light of established principles." And now again in direct contrast with this decision of the Supreme Court and the Lucas County Circuit Court as to when the statute of limitations begins to run, is the following extract from the holding of the Richard County Circuit Court, in the case of Fronce *vs.* Nichols, decided in 1901. I quote: "The action counts upon (or in other words, the statute of limitations begins to run from the time of) malpractice, the maloperation, the breach of duty, and not knowledge of resulting injury, or damage resulting

from malpractice. The statute construes itself; it is plain and unambiguous. Judicial construction that reads any thing into, or out of, such a statute, is judicial legislation.

From the foregoing it would seem that the physicians of Ohio have ample grounds for resentment at the action of the three members of the Supreme Court, whose votes have, to a very large extent, nullified the effect of the one year statute of limitations regarding malpractice suits in this State.

I have following a brief summary of all the cases of malpractice reported in Ohio. Lack of time, however, forbids my giving them here in detail.

The earliest reported case of malpractice in Ohio is that of Bliss *vs.* Long (Wright's Reports, page 352), decided by the Supreme Court at the August term, 1833. In that case the court held that a physician called to attend a patient does not, in the absence of any express agreement to that effect, contract, or impliedly warrant that he will effect a cure; but that he only undertakes to use ordinary skill as a physician and surgeon in the employment of means. To the same intent is the opinion of the court in the cases of Gallagher *vs.* Thompson (Wright's Reports, page 467), decided at the October term of the Supreme Court, 1833.

In 1860; the case of McCrory *vs.* Skinner (Western Law Monthly, 203) was decided by the Common Pleas Court of Guernsey County, but did not go to the Supreme Court. The opinion was by Judge Okay, afterward a member of the Supreme Court, and the point decided was that a right of action against a physician or surgeon for malpractice does not survive the death of the physician, except where some special damage (other than that ordinarily arising from neglect or unskilful treatment) be shown, or where the suit was begun before the death of the physician. In this connection I wish to speak of the case of Wolf *vs.* Vail (40 Ohio State, III), decided by our Supreme Court in 1883, at the time when Governor Nash was a member of the court. This case is also from Guernsey County and lays down the rule

that "at common law an action for an injury to the person caused by the want of skill, or negligence of a surgeon, although based on contract, did not survive the death of either party;" and that Section 4975 of the Ohio Revised Statutes, which provides that certain actions shall survive, does not apply to ordinary malpractice cases.

The case of Geiselman *vs.* Scott (25 Ohio State, 86) was decided in 1874, and follows the same rule as the above case. In addition to that, the doctrine of contributary negligence is discussed and applied.

The same doctrine was cited and followed in the case of Robinson and Weaver *vs.* Gary (28 Ohio State, 241).

In the case of Musser's Executors *vs.* Chase (29 Ohio State, 577), decided in 1876, it was held that "an empiric is liable to a civil action for malpractice, notwithstanding it is made a penal offence for such a person to practice medicine in any of its departments." And also: "In an action for malpractice, where the defendant is declared against as a physician, proof that he held himself out as 'a cancer doctor,' and as having skill and experience in the treatment and cure of cancer, substantially supports the allegation."

The next case is that of Wolf *vs.* Wall, already referred to in another connection. In the case of Havens *vs.* Hardesty, decided by the Circuit Court of Franklin County in 1895 (9 Ohio Circuit Decisions, 856), it is held that "Errors of judgment and want of perfect information alone do not establish a liability against a physician for malpractice." And in Smith *vs.* Brown (12 Ohio Decisions, 522), decided in 1902, the Cincinnati Superior Court held that "In an action for damages for malpractice there must be proof by the testimony of experts of some specific act of unskilfulness or negligence, to entitle the plaintiff to recover. Testimony of a character which might enable a jury to assume that there was negligence or unskilfulness is not sufficient basis for recovery, especially where no cure was guaranteed."

In the case of Shuman *vs.* Drayton, decided by the Cir-

cuit Court of Wyandot County, in 1897 (8 Ohio Decisions, page 12), the principle is laid down that "the cause of action for malpractice, though the service rendered is on contract, express or implied, arises on negligence, or the failure to exercise due care and skill, and not necessarily involving either malice or wilful wrong doing."

The value of this decision lies in its holding that actions for malpractice are not "actions upon contract, express or implied," for by the statute of limitations such actions are not barred till six years after they accrue. Hence the value of the decision that actions for malpractice sound, as our legal brethren would say, in tort, not in contract. This same rule was followed and reasserted by the Circuit Court of Lucas County in July, 1901, in deciding a case in which I, unfortunately, was defendant. (Tucker *vs.* Gillette, 12 Ohio Circuit Decisions, 401.) In my case the Circuit Court also laid down the following rule, as to the proper and required conduct in surgical cases, and as to when the statute of limitations begins to run. I quote from paragraph five of the syllabus:

"The duty of a physician and surgeon to continue in attendance upon a patient after the performance of a surgical operation until the person is cured of the operation or until his services are no longer required, is as incumbent upon him as the duty of exercising ordinary care and skill in the actual performance of the operation, and an action for malpractice does not accrue against him till the cure has been effected or until his attendance is no longer necessary."

With reference to the implied contract of the physician and surgeon when he accepts a case, to use reasonable and ordinary skill and care in his treatment of the case there are three more decisions. The first, that of Tish *vs.* Whelker, decided by the Common Pleas Court of Knox County, in May, 1897 (5 Ohio Decisions, 725), is as follows: "A person who holds himself out to the public as a physician and surgeon is not required to possess the highest degree of knowledge and skill which the most learned and skilful of

his profession may have acquired, but he is required to possess and exercise at least an average degree of knowledge and skill."

The next case is that of Eislein *vs.* Palmer, decided in June, 1896, by the Common Pleas Court of Hamilton County (reported in Vol. 7, Ohio Decisions, page 365.)

The case of Ewing *vs.* Goods, decided by one of the Federal Courts of Ohio in 1897 (volume 9, Ohio Federal Decisions, page 574), holds that mere lack of skill, or negligence, on the part of a physician or surgeon, which does not cause any injury, gives no right of action, and no right to recover even nominal damages; that the implied agreement of the physician and surgeon is, that no injurious consequences shall result from want of proper skill, care or diligence on his part in the execution of his employment; and, therefore, if there is no injury by reason of lack of skill, care or diligence on the physician's part, he is not liable, for there was no breach of his obligations.

The case of Bliss *vs.* Long (Wright's Reports, 352) was one of engagement of Dr Long to attend Mrs Bliss during delivery. He did so, and after a severe and protracted labor he dissected the child from the mother with a knife and a hook made for that purpose. It was claimed, against the physician, that Mrs Bliss was injured by the delivery, and had been diseased since.

The case of Gallagher *vs.* Thompson (Wright's Reports, 467) was one against Dr Thompson for alleged negligence in setting a broken leg.

Grindle *vs.* Rush (7 Ohio, 123) was also a broken-leg case.

McCrory *vs.* Skinner (2 Western Law Monthly, 203) was an action for alleged negligence in setting an elbow-joint.

Wolf *vs.* Wall (40 Ohio State, 111) does not say what the facts were.

Craig *vs.* Chambers (17 Ohio State, 254) was also a broken-leg case.

Geiselman *vs.* Scott (25 Ohio State, 86) is an action for

alleged negligence in treating a swollen and diseased foot and ankle.

Smith *vs. Brown* (12 Ohio Decisions, 522) was a case of alleged malpractice in treating a compound fracture of the arm near the elbow.

Tucker *vs.* Gillette (12 Ohio Circuit Decisions, 401) was a case of alleged negligence "in leaving a small gauze or cheese-cloth sponge, consisting of eight layers of cheese-cloth, 2 by 3 inches in size, sewed together, in plaintiff's abdomen, after an operation, and permanently closing the opening made in said abdomen, without drainage, by through-and-through silk-worm gut sutures, reinforced by buried kangaroo tendons through the peritoneal parts, and within 10 days thereafter, preceded by great abdominal pains, pus forced its way out through such incision, and continued to flow, in such quantities as to twice a day saturate a dressing of absorbent cotton, about one inch in thickness and about eight inches square."

The case of Fronce *vs.* Nichols (12 Ohio Circuit Decisions, 472) is somewhat similar to my own. Dr Nichols was employed to, and did operate upon the plaintiff for appendicitis, and in closing the incision he used metallic wire. After a time this wire began to cause irritation, and pus-formation set in. The doctor told his patient to cut off the wire as it would work itself to the surface from time to time, and she did so for about eight months, when she consulted another surgeon, who discovered that the plaintiff was suffering from a ventral hernia or rupture, caused by the destruction or giving way of the abdominal walls; and that this giving way of the walls of the abdomen was due to the use of the metallic wire in closing up the appendicitis incision.

Tish *vs.* Welker (5 Ohio Decisions, 725) is another case of a broken leg.

Eislein *vs.* Palmer (7 Ohio Decisions, 365) was a rather interesting case. Mrs Eislein gave birth to her only child in 1871. During the childbirth there was a severe laceration of the perineum, extending from near the *spincter ani*

obliquely along the back wall of the vagina to the cervix uteri. Mrs Eislein states that the attending physician (who is now dead) did not do anything to repair said injury, and that she did not consult any physician until the early part of 1886, and that she was gradually getting worse during said period of 15 years of neglect. During the year 1886 Dr Palmer performed on Mrs Eislein three operations—one was upon the womb, by cutting the same, and two upon the perineum; the second operation upon the perineum was a success as to the lower two-thirds of the same, but as to the upper one-third, from some causes unknown, the healing was by secondary intention, and the new tissue thus formed was cicatricial tissue. For the purpose of removing this scar tissue and having the parts heal by first intention, Dr Palmer performed a fourth operation on April 21, 1888. Mrs Eislein was properly placed under the influence of anesthetics, and the said cicatricial tissue was removed in the usual way. While Dr Palmer was passing the sutures, possibly the second or third, the needle broke. He immediately made a search for the broken fragment, for 10 to 12 minutes, by introducing the finger into the rectum, also into the vagina, but said fragment could not be found. Then the clothes of the patient, operating table and sponges were examined, but the missing part of the needle could not be found. The anesthetist informed Dr Palmer that the patient was not doing well, and was becoming very weak under the anesthetic; without the actual knowledge of the fragment of the needle being in the perineum, except that it could not be found elsewhere, Dr Palmer closed the incision as quickly as possible. He visited Mrs Eislein on April 22, 23, 24, 25, 26, 29 and 30, and also on May 2, 4 and 6, 1888, and examined the wound several times, as far as was advisable without endangering the success of the operation, to see if he could locate the missing fragment, but was unsuccessful. On May 4, or 6, the stitches were removed, the healing progressing favorably and apparently by primary union. Mrs Eislein on May 6 desired to leave the hospital for her home. Dr Palmer

ordered her to remain until May 8, when he said he would give her final instructions; but about noon on May 6, Dr Palmer's horse ran away, throwing the doctor out upon his head, and injuring him so that for months thereafter he was unable, either mentally or physically, to attend to any business. On May 8 a Dr Jones was called to see Mrs Eislein, made an examination, and found everything favorable, and allowed her to go home on May 11. After she returned home she complained of pains in the pelvic region, and the same became more intense in the early part of 1889. In the early spring of that year Dr Jones made a careful examination of her, and concluded that there was some cicatricial tissue, which had formed when Dr Palmer performed his last operation. He then operated to remove said tissue, and in so operating cut in upon the fragment of the needle lost by Dr Palmer. This fragment was completely surrounded on all sides and ends by cicatricial tissue, and was in the same position it was left when it was broken. After this operation Mrs Eislein became healthier and stronger than she had been since the birth of her child, in 1871.

Mrs Eislein sued Dr Palmer, alleging negligence in his not telling her or her husband that a broken fragment of the needle had been left in the perineum. The jury returned a verdict for the defendant, which the judge refused to disturb, holding that Dr Palmer was not negligent under the circumstances.

From the statutes and judicial opinions as furnished me by my attorney, Mr Geo. F. Wells, the law relating to malpractice in Ohio may be briefly summarized as follows: —and I wish to say that it is almost an axiom that malpractice suits are instituted by charity patients.

1. Actions for malpractice are actions for a tort, or wrongdoing, and not for a breach of contract, and must be brought within one year after the cause of action accrues.

2. Under the latest holding of the Supreme Court the cause of action does not accrue until the patient's case has been abandoned, after reasonable notice given, by the phy-

sician, or until the professional relation has been otherwise terminated.

3. In the absence of an express stipulation to that effect, the physician, in accepting a case, does not contract to bring about a cure; but he is under an obligation to, which the law implies from the employment, to exercise the average degree of skill, care, and diligence exercised by members of the same profession, practicing in the same or a similar locality, in the light of the present state of medical and surgical science, and that he will indemnify the patient against any injurious consequences which may result from his want of ordinary skill, care and attention, in the execution of his employment.

4. It is also the law of this State that a surgeon, after performing an operation at a hospital, if the patient leaves the hospital before being entirely cured and restored to former and normal health, and strength, must follow up such patient, wherever he or she may be (unless dead), and render such further care and treatment as the necessity of the case may require.

5. The right of action for malpractice, in the absence of some special damage not occurring in ordinary malpractice cases, does not survive the death of either physician or patient.

6. A patient whose own negligence, or refusal to obey the reasonable and proper instructions of the physician, contributing to his injury, cannot recover from the physician.

DISCUSSION

Dr J. F. Baldwin, Columbus: There is one point which the Doctor did not bring out. I have been through the mill myself a few times, or partially so at least, and am somewhat of an authority on this subject. The professional witnesses against the doctor in any suit for malpractice must be of the same school of practice as himself. This is not a matter of statute law, but it has been established by the Supreme Court.

Then there is another thing which is not a matter of

law in regard to malpractice suits alone, but an established principle which has been successfully used in Columbus: if the plaintiff, in the opinion of the presiding judge, fails to make out a *prima facie* case, if in the opinion of the court he fails to establish a "scintilla of evidence," the judge can take the case from the jury and throw it out of court. If such a "scintilla of evidence" is offered, however, then the case must go to the jury. In many of these malpractice suits, if the attorneys for the defendant are well posted, they can, in their cross-examination, and especially in their cross-examination of the expert witnesses, succeed in making such a showing as to prevent the introduction of this "scintilla," and thus secure the dismissal of the case. In my own case, the plaintiff, after occupying seven days in presenting testimony, "rested," and my attorneys at once moved to throw the case out of court for the reason that not a "scintilla of evidence" had been presented. The court admitted that no evidence had been presented, but allowed the plaintiff to reopen the case and occupy another day in presenting more testimony. The prosecution again "rested," and again the motion was made to throw the case out of court. A second time the judge permitted the prosecution to present more testimony, and thus another day was consumed, at the end of which time the motion to throw the case out of court was renewed and approved by the judge. Thus the case was ended.

In another case against two of our physicians for a broken arm, the same result followed. I regard this as an important point, since in very many cases which have been brought within the last few years in central Ohio, there has been no ground whatever for the prosecution, and care on the part of the attorneys for the defendant would have undoubtedly, in many of these cases, cut the trial short by throwing it out of court.

I may state, incidentally, that while my own case was annoying, at the same time it was entirely inexpensive, since I was fortunately insured in the Fort Wayne Company.

Dr F. B. Entrikin, Findlay: I would like to see a law formulated and passed in such a way that when these suits for malpractice are brought against a doctor and nothing can be proven against him, he can have some way of getting back at his persecutors, or at least get back part of what he

has spent in trying to defend himself. There are too many attorneys who have to live by collecting rents, etc., and they are only too eager to take up any sort of a case against a doctor and bring suit for malpractice, and with the doctor they are willing to take up his case and will tell him if they do not win his case he will have nothing to pay. The doctor has really no means of defending himself. Now Doctors, you who have friends of influence, have a talk with them and see what you can do to bring about some legislation which will protect the doctor and prevent this bringing of suits for malpractice which is getting to be entirely too common. My trouble has been with the charity patients who want something for nothing.

Dr Jacob A. Kimmell, Findlay: There is one point to which I would like to call attention. I believe that a physician should not be held responsible for a patient when he leaves a hospital, and it should not be his duty to hunt him up and see that the patient gets well. That might involve the leaving of a physician's business and going out to Indiana or some distant part of Ohio to hunt up the patient. This sort of thing is done by some patients who want to bring a malpractice suit; they will leave the hospital without the consent of the physician or attendants of the hospital and go out on purpose to bring a malpractice suit. It is the duty of this Association to demand that the law by which such a thing can be done be repealed. It is a gross injustice for the State of Ohio to place such an embargo on a physician in the practice of his calling. Such a law should be erased from the statute books and thus give a man a chance for his life.

Dr James Fraunfelter, Canton: I wish to present another thought in reference to malpractice suits which has not been touched upon. I have had some experience with these suits. It is the law when two physicians are connected in a case and an anesthetic is given that the one giving the anesthetic is equally liable with the one who operates. I have had a little experience of this kind during the last four or five years. The man who has nothing to do but give the anesthetic should not be liable to the same extent as the one who does the operation, especially when he has not been consulted in the case.

Dr Wm. J. Gillette, Toledo, closing discussion: In reply to the first question—I would say that a minor has a right to begin suit after he reaches age.

About six years ago none of the defense unions were in existence. A man who has a good deal of surgical work to do is likely to be sued frequently, but these companies are by no means to be depended upon to see him through any suit because both the New York Company and the Fort Wayne Company reserve the right to drop a man at any time. The laws of the State should be strong enough to defend us. We do not ask anything, or any protection for wrong doing, we do not want laws of such a character that they will protect us in wrong doing, but there should be laws enacted as to how, and the time when these suits can be brought. As the matter stands today there are no laws as to the matter at all.

CHAPTER V—EYE, EAR, NOSE and THROAT

The Effect of Mastoid Operation in Recent Middle-Ear Suppuration

BY JOHN E. BROWN, A. M., M. D., COLUMBUS

Tympanomastoid exenteration, more popularly known as the radical operation, has demonstrated its efficiency as a curative procedure in chronic suppurative otitis media. In looking to this finality for the chronic process, we must not overlook that other equally well-demonstrated fact that the much simpler operation—antrectomy—or Schwartze's perforation of the mastoid antrum, is of itself efficient in the cure of cases of recent middle-ear suppuration, which may have resisted other more conservative forms of treatment.

Granted that from the beginning of the disease the most intelligent treatment has been given there will be a small percentage of the cases of acute suppuration in which the discharge from the ear persists, or which develop more or less grave complications. Of the latter the most frequent is mastoid infection, with resultant empyema. When mastoid symptoms are pronounced the diagnosis is not difficult and the indications for operation are plain. It is when these symptoms are not so clearly manifested that the surgeon may feel taxed in making his decision. In acute otitis media, bulging of the posterosuperior portion of the *membrana tympani,* sagging of the adjacent meatal wall, pain and tenderness on pressure over the mastoid antrum or tip, are given as the classical symptoms of mastoid infection. There are surgeons before me who were taught as students that edema over the process was the symptom in mastoid disease indicating the necessity for operation. Then came tenderness on gentle pressure, and now we give equal consideration to that elicited on firm pressure.

It is generally believed that in every case of otitic suppuration there is some involvement of the mastoid antrum and perhaps of the adjacent pneumatic spaces. This, then, occurs when we have no focal symptoms to point to mastoid involvement. It seems, therefore, that our present diagnostic symptoms do not mean merely the presence of infection in the mastoid, but rather a certain predominancy of this infection over that in the tympanic cavity, or unusual activity in its attack on the tissues in and about the mastoid.

Experience has demonstrated that all the classical symptoms may be lacking and yet extensive disease be present in the mastoid. If after syringing, inflation and drying of the parts, pus almost immediately reappears, there must be a reservoir not simply in the tympanum itself, but in the cavity of the mastoid antrum or mastoid cells. With such an infection, even if it does not result in empyema, is it reasonable to suppose that any line of treatment will be uniformly successful in curing the disease unless the infected area is opened up and drained?

If a rational treatment, in which early incision or paracentesis of the *membrana tympani* is so important a part, (note the records of Bezold and Körner of 405 consecutive cases of mastoiditis which came to operation, which show that in only 43 of these had an early paracentesis been performed) does not result in a cure we are in duty bound to consider surgery, which at this time will be much more effective than after the disease has become chronic. We do not need the so-called classical symptoms to warrant an operation. The persistence of the discharge is a sufficient indication. The ills which result from a continuance of the disease are amply testified to in the developments of the special surgery to combat them.

The statistics of reported antrectomies show the efficacy of this procedure as a cure for the associated suppuration, when not of too long standing. Gradle, Meierhof and others call attention to the importance of this indication for the

operation but the most extended and exhaustive essay on this point is that of Milligan (Manchester).

Hammerschlag, voicing the teachings of Politzer's clinic, says that it is not always necessary to open the antrum in mastoid cases, and that perforation of the cortex and curetting of diseased cells often suffices, but the preponderance of opinion is with the Schwartze school, that the equally safe antrectomy is surer of good results and diminishes the probability of later operation.

Investigations in the bacteriology of acute middle-ear suppuration have led to practical results, so much so that it should be a rule of practice in these cases to have a bacteriologic examination made to determine the nature of the infection. The three forms most frequently found are streptococcus, staphylococcus and pneumococcus, the order of frequency for these three differing according to the findings of the different observers. It is found as a rule that the infection is seldom monomicrobic. It is an aid to us to know that the pneumococcus is usually associated with a form of infection more benign than that of the two other more frequently found forms; that the streptococcus infection is grave, that in it bone-tissue more quickly disintegrates and that its presence is by some always considered an indication for opening the mastoid. The findings of the bacteriologic examination may lead to the use of a proper antitoxic serum which may aid greatly in the treatment of the case. Percussion of the mastoid, while of value, cannot influence our decision as to operation in this class of cases.

How long shall we wait in a case of middle-ear suppuration before resorting to antrectomy? I believe that Gradle has given the rule that best conserves the interests of patient and surgeon, namely, if under proper treatment the symptoms are stationary for a period of two weeks, showing no improvement, this period of two weeks not being reckoned from the beginning of the disease, but from the time when under observation the symptoms ceased to show improvement, then no cure can be expected until the mastoid

been opened. That cases of mastoiditis can be cured without operation does not influence the question we are discussing.

How does mastoid operation cure recent middle-ear suppuration? It does so by opening up and removing foci of infection in the antrum and pneumatic spaces; by clearing the aditus and attic of infectious material when there present; by relieving the mucous membrane of the tympanic cavity of the irritation of discharge from the antrum and mastoid cells; by giving opportunity for a thorough cleansing of the meatus, tympanic cavity, mastoid antrum and cells and then protecting them under aseptic surgical dressings, maintained until the infection is under control or the middle-ear discharge ceased; by instituting for the patient a hospital or postoperative regime in which bodily resistance has better opportunity to help overcome the infection.

Milligan's valuable resumé shows that in 10 acute cases in which the mastoid was opened, the ear discharge promptly stopped in all. In 10 subacute (recent) cases, nine were entirely cured by the operation, while one was lost sight of. Bacon says that the discharge in these cases usually diminishes in quantity or ceases altogether. My own experience in recent years has been to the effect that operation in recent cases of suppuration is almost invariably followed by entire cessation of discharge, cicatrization of the *membrana tympani,* and save, when unusually destructive lesions have been present in the ear, a return of good hearing. Reviewing the records of the last 25 cases of this class I find but two in which it was noted that a discharge continued. One of these was that of a negro child suffering from tuberculosis, which had already suffered the amputation of a leg, and where the local disease was tubercular in nature. The other was that of a child in which scarlatinal otitis had resulted in mastoid abscess, cervical (Bezold) abscess, destruction of the *membrana tympani* and exfoliation of the ossicles. The discharge remaining in this case was not sufficient to

indicate any remaining affection of the bone or a concealed focus of infection.

As regards the hearing, later *ossiculectomy* cannot give such favorable results, neither is it so effective in curing the discharge, because it fails to reach the seat of infection in the mastoid.

Antrectomy demands hospital surroundings, the portable electric light, and under these circumstances it is a perfectly safe procedure. It is only the disease that is dangerous. Recognizing the power of the operation to cure, this should lead us to regard the necessity for operation in cases of empyema as not wholly an evil to the patient, while in every case of recent middle-ear suppuration when the symptoms remain stationary for a period of two weeks the operation should be advised as a means of securing a cure

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DISCUSSION

Dr John A. Thompson, Cincinnati: There is one point in connection with these cases which I have learned from clinical experience during the past few years, and which I think is not in any of the text-books. In these acute cases the pus is drained through the opening in the tympanum, but if an early operation is made allowing the pus to drai-

through the mastoid wound it is possible to retain the hearing in the affected ear. If you will recall the relative size of the tympanum and mastoid antrum and the other cells connected with it, it is plain to be seen that the amount of pus which comes from these suppurating ears cannot possibly be excreted through the opening in the drum as rapidly as it can flow from the mastoid cells. So long as this accumulation of pus must find its outlet through the narrow tympanic cavity through the small perforation of the drum the inflammation of the membranes of the tympanic cavity is bound to continue. If, however, an opening is made into the mastoid antrum and cells allowing the pus to drain off in this way you will find at about the second dressing when you take your gauze out of the external meatus that it is dry. In other words the perforation in the drum membrane has closed and all the pus is passing out through the other opening relieving the irritation of the delicate structures of the middle ear and preventing the formation of adhesions. In cases in which the inflammation can be primarily relieved in the tympanic cavity in this way, patients not infrequently have normal hearing after the Schwartze operation. I recall a case operated upon two years ago in which the symptoms were exceedingly confusing, and early in the case it seemed to be just a simple middle-ear inflammation which would not get well. There was some tenderness over the mastoid, but the child had eczema of the skin over that portion of the head, and when the disease of the ear came on, that was a confusing symptom in the diagnosis. The persistence of the discharge and the increase in the constitutional symptoms, high temperature, etc., caused me to advise a mastoid operation, even though there was no swelling over the mastoid. When I cut down upon the mastoid I found the cortex destroyed, and I could pass my little finger directly into the antrum. The lateral sinus also lay bare in the wound. In that case, severe as the destruction of the mastoid cells had been (it was an acute case), the drum was healed at the time of the second dressing, on the sixth day. The child has normal hearing in the ear operated upon. I tested it in March of this year and found the hearing perfect. By means of this operation, in addition to saving the hearing, you avoid the dangers of pyemia or of general septic infection. One of the worst cases of pyemia that I have seen in 19

years of more or less surgical work came from the mastoid. As I have said, in addition to avoiding these dangers by early operation on the mastoid, you give your patients good hearing, and as the Doctor has said, they have normal hearing in a great many cases.

Dr F. G. Stueber, Lima: Last year while in attendance at the Saratoga meeting of the American Medical Association I heard a paper on this subject, though I do not now recall the writer's name. The substance of his paper was conservatism, favoring the nonoperative plan of treatment. We are all in favor of conservatism, and I quite agree with Dr Brown in that not infrequently conservatism means an operation. If after several weeks of treatment no improvement follows, an operation is indicated. The earlier the operation is done the more prompt and speedy is the recovery.

Along this line I wish to cite a case which first came under my observation several years ago; the patient had an acute otitis media, with some slight mastoid symptoms. The "conservative" plan of treatment was adopted, and there was some improvement. The patient left for the country; several months later he reported to me, and was apparently improved. He has now resumed his occupation. A short time ago, after a lapse of more than two years, late one afternoon, I was called to see the patient. Upon inquiry I learned that he had suffered a "relapse," and that the ear had been running for several weeks; there was headache, slight photophobia, and some tenderness over the mastoid and side of the head. His temperature was 102° and the pulse was 110. The case was again seen on the following morning; an operation was advised, though the patient could not make up his mind to consent to this. Late that night an operation was decided upon. During the day the patient's temperature ranged from 102° to 103½°; there was some slight nausea and vomiting. At the time of the operation the axillary temperature was 104°.

The bone was sclerosed, and the antrum and middle ear were filled with pus and granulated tissue. The symptoms indicated sinus invasion; the bone was cut away and the sinus was exposed; this presented a mottled appearance; the walls were freely incised and after the use of the curet smart bleeding followed.

There was some improvement, however; to be brief

the patient developed metastatic complications and died several weeks later.

It is our duty to call the family physician's attention to these cases; very often they see the case in its early stages and can do much toward influencing the patient.

Dr George E. Malsbary, Cincinnati: I was glad to hear the essayist refer to the unreliability of tenderness over the mastoid as a diagnostic point, and the greater importance to be attached to the discovery of a discharge from the ear. The previous speaker has referred to the "conservatism" manifested by a gentleman (Dr Sargent F. Snow, of Syracuse, N. Y.) at the meeting of the American Medical Association at Saratoga last year. At the meeting this year, in New Orleans, the gentleman emphasized the statement he made last year, that he would use the applications of ice only so long as there was distinct improvement shown under this treatment. It may be well, in this connection, to call attention to the fact that he insists that the application of ice must be continuous, so that the tissue is kept constantly cold. The gentleman stated at the New Orleans meeting that he desired to be understood as not over-conservative. Indeed, as a matter of fact, he probably does fully as large a percentage of operating in these cases as the average specialist in this field. Anything that may save an operation now and then deserves our attention, but it is not always conservative to delay operation. It is not conservatism to sit idly by and watch the septic process destroy the hearing and possibly the life of the patient in order to avoid a comparatively simple operation. We must recognize that a *discharge of pus from any part of the body is not normal* and should be regarded as a pathologic process. The individual with a discharge of pus issuing from the ear should be warned of his danger, which is just as real as though he were seated over a veritable volcano that might burst into eruption at any moment. It is not safe for an individual to permit a discharge or accumulation of pus to go untreated, whether the pus issues from the ear, or is due to a diseased ovary or appendix. All accumulations of pus must be regarded as dangerous.

Dr D. W. Greene, Dayton: I am very glad indeed to hear the paper by my friend, Dr Brown. The subject which he has presented is certainly a very important one, and the discussion is very timely. I remember in my own early

experience the treatment of such cases in children consisted simply in making an opening for drainage. It never was a good procedure and did not compare at all with surgical measures as we understand them now. At the present time the more radical operation of Schwartze is in vogue and is advised by all good surgeons for the treatment of these conditions. The Wilde incision, while it relieved the periosteal abscess, left the bone condition untouched, and all men know that this is dangerous from every point of view. The treatment advocated by the Doctor is just what should be done, and again I would like to say that the paper is very timely, and the advice is good.

Dr Dudley P. Allen, Cleveland: Ordinarily the general surgeon operates little upon the ear or the mastoid. There is no field, however, in which it is more necessary that early and radical operations should be performed than in just such conditions as Dr Brown has described. I can recall many cases which have been left until there has been secondary involvement of the brain or infection of the lateral sinuses extending down the jugulars and into the lungs. I am convinced that any successful results from treatment must be in early operation. The dangers from operation are slight and the importance of early surgical interference should be fully appreciated by the entire medical profession.

Dr J. E. Brown, Columbus, closing discussion: I feel greatly indebted to the members present for the generous discussion given the subject presented. It is one which I think demands the careful attention of the general practician as well as the specialist. One speaker misunderstood the paragraph in my paper in regard to the time when operation should be performed. I tried to make this plain. I did not state that we should operate in these cases within two weeks after the development of the disease, but that in a case under observation, if no improvement whatever had taken place in two weeks' time, we then had reason to believe that the operation should be performed. Often these cases do not come into our hands until a month or even more time has elapsed since the beginning of the disease. If we are to get a cure without operation these cases should begin to show improvement in two weeks' time.

Dr Steuber referred to a case reported at Saratoga in which serious mastoid symptoms had disappeared under

conservative treatment. My paper discussed alone the study of mastoid operation as a method of cure in acute suppuration, but this case having been referred to I would say that I was present at that session and the discussion plainly showed that the consensus of opinion was that conservative methods would ordinarily, in the class of cases to which the one reported belonged, be followed by disastrous results, that to delay operation would ordinarily mean a fatal result.

Dr Thompson emphasized a point which I am very glad to have brought to your attention in this way, namely, that we may have intracranial perforation without any external swelling and with no mastoid tenderness whatever.

In regard to hearing, if this operation were not indicated for any other reason I think we would be justified in its performance in every severe case of suppuration for what it does in restoring good hearing. I do not know that we can all agree as to the function of the mastoid cells, but I think we ought to be satisfied with the results which we obtain by using it as a method of approach to the middle-ear cavity for securing drainage in suppuration and thus saving the function of this diseased cavity. If we are going to have a septic discharge flowing down over the walls of the tympanic cavity these parts will be damaged. This damage means more or less loss of hearing. In the great majority of cases in which the mastoid operation is performed in cases of recent middle-ear suppuration we have cessation of discharge, healing of the drum membrane and restoration of good hearing power. This being the case, why should we have so many cases of chronic suppurative otitis media? It is because as specialists and as general practicians we have not impressed upon our patients the importance of these cases of acute suppuration and insisted upon those measures which will prevent the later and serious sequels of the disease.

The radical operation for the cure of chronic suppuration is a much more extensive surgical procedure. We must treat these patients after operation constantly, almost daily, from six weeks to nine months or even a year after the operation has been performed. This period of after-treatment is a long and tedious one. The after-treatment of the Schwartze operation, which I am advocating in this paper as a procedure in cases of recent suppuration, is short and comparatively simple, and the operation usually leaves no deformity.

The Snellen Wet Dressing in the After-Treatment of Cataract

BY C. F. CLARK, M. D., COLUMBUS

The method of dressing described below is very old but has long fallen into disuse. It is, in my opinion, well worthy of reconsideration.

In our endeavor to perfect the operation for the extraction of senile cataract and obtain in each case the best possible result, almost as much depends upon the nature of the after-treatment and the careful management of dressings as upon the original operation.

Holding in check the iritis, which sometimes accompanies the traumatism necessarily incident to such an operation, and, above all, maintaining the lips of the wound in accurate apposition and thus avoiding prolapse of the iris, are matters of the most vital importance, and any means which tend to aid us in accomplishing these objects are well worthy of our consideration.

It is doubtless true that excellent results may be obtained in a variety of ways, and almost every operator of large experience has some method of his own which he regards as of more or less importance in accounting for his success. Some prefer as light a dressing as possible, even going to the extreme of using only a small strip of court-plaster applied over the closed lids, while others go to the opposite extreme and insist upon a large covering of gauze and cotton with a long roller-bandage applied as a binocular or figure-of-eight, and over this apply a mask.

In the course of the last 19 years I have employed with a good measure of success both of these, and a variety of what might be termed intermediate methods, generally preferring a dry dressing strapped down with isinglass plaster and covered with cotton and a Ring mask. I have at times been inclined to agree with some of my friends who have reasoned that, if good results may be obtained by such a

variety of dressings, it does not much matter which we adopt. But I am convinced, and I think all will agree, that in an operation such as the extraction of cataract every detail is worthy of the most careful study and we cannot afford to ignore any suggestion that adds to our assurance of success in avoiding those accidents which, after a carefully performed extraction and in spite of all of our precautions, sometimes lead to such unfortunate results as prolapse of the iris.

During the summer of 1902 I had an opportunity of visiting a number of well-known eye clinics, and endeavored to obtain some new ideas on this subject. I will not occupy your time with a recital of the various methods employed, but will state that with a large proportion of operators the binocular bandage seems to be the favorite and while in minor details they differ somewhat, at only one clinic did I find a method of dressing which may be said to mark a real and important step in advance in the after-treatment of cataract.

A maximum of safety to the operated eye with a minimum of discomfort to the patient and early use of the unoperated eye are certainly objects worthy of consideration not only in cases of cataract but in other operations involving corneal section. With the additional advantage of a much higher degree of security against sepsis than is possible by the old method, these objects are attained by the dressing which is employed in Snellen's clinic at the Donders Hospital at Utrecht.

After the toilet is complete a small patch consisting of a single layer of gauze is laid over the closed lids of each eye and over this are carefully laid, one at a time, a large number of small pledgets of absorbent cotton thoroughly saturated with a one to five thousand solution of bichlorid of mercury. A sufficient number of these are employed to completely fill out the orbital fossa and over this wet mass is laid an oval patch of thin, rubber tissue of such size as to cover the cotton. This is held in place by two or three

strips of isinglass plaster and outside of it is placed a mass of absorbent cotton which is usually retained by one of Snellen's concave aluminum protective shields held in place by adhesive plaster.

This outer dressing, however, may be substituted by the ordinary roller bandage, a tail bandage or, as I prefer, by the Ring mask, which is easily removed and serves to give the patient confidence, as he realizes that extreme violence would be required to injure an eye so protected.

In case the patient's skin does not tolerate the bichlorid, a boric acid solution may be substituted, the important point being that a *moist,* aseptic, or mildly antiseptic dressing shall be so accurately moulded to the eye as to fix it in place and prevent movement of the lids, while serving to prevent sepsis from without.

In order to maintain the moisture the dressing is renewed every 24, and sometimes as often as every 12 hours.

On seeing this dressing applied for the first time I at once raised the objection which naturally arises in the mind of every one; namely, that by such a method we were practically poulticing the eye and by maceration favoring sepsis.

A moment's reflection will convince one that this reasoning is unsound and nine months' constant use of the dressing has convinced me that I must adapt my reasoning to the facts, all of which stand in favor of this method. It is true we may, to a slight degree, macerate the skin of the lids, but this has caused me no trouble, and after all it is not the skin we are treating, but the eye, and when closed, the eye, even without any dressing, is always moistened with the lachrymal secretion. There seems to be no reason why moisture on the outside of the lids should unfavorably influence the healing of a wound, and, indeed, the facts as developed by my own experience, prove that it does not.

Our fear of poultices in ophthalmic surgery is, no doubt, based largely upon our unfortunate experience with septic poultices as applied in domestic practice, but the almost constant freedom from deposits of mucopurulent secretion in

this form of dressing when removed convinces me that the constant presence of an antiseptic solution in contact with the lashes and the orifices of the glands in the lid-margins serves to powerfully inhibit the development of septic material from this, which is deemed one of the most fruitful and inaccessible sources of infection about the eye.

I have laid some stress upon this phase of the question because I realize that in advocating moist dressings after cataract extraction I am going counter to the general practice of ophthalmic surgeons, and in such an innovation the burden of proof must be borne by those who urge a departure from a generally accepted practice.

Even nine months of constant personal experience with this method of dressing in both private and hospital practice, and its uniformly successful use in more than 25 successive cases of cataract extraction, most of which were simple extractions and in not one of which there was prolapse of the iris, would not, perhaps, justify me in advocating it so strongly were I not merely repeating in my own work the experience of years in one of the best-known ophthalmic hospitals in Europe, that of Professor Snellen, of Utrecht. In the large service of this great hospital Professor Snellen and his assistants assured me that, in spite of the fact that, with rare exceptions, they perform simple extraction, they had had only one case of prolapse of the iris in the last two years.

To the patient, as well as to the operator, one of the great advantages of this dressing is that, if kept thoroughly wet, it forms so accurate a cast of the orbital fossa and holds the lid so securely in place that at the end of 24 hours the unoperated eye may be uncovered. This has been my practice and I have seen no reason to regret it. Indeed, in Professor Snellen's clinic they often remove the dressing from the unoperated eye within a few hours after the operation.

It is my belief that this is a real step in advance in our method of treating corneal sections and well worthy of a trial.

DISCUSSION

Dr Harris G. Sherman, Cleveland: I have observed and employed the various methods in bandaging the eye following cataract operations, and for some time past have adopted almost exclusively the so-called "Gold beaters skin" as the most desirable method of dressing the eye after cataract operations, because it may be made aseptic, is transparent, is readily adapted to the lids, forming a secure closure of the same, while permitting observation of any changes which may take place without disturbance of dressing. By means of the bandage the patient and operator enjoy a larger measure of confidence that all is well than from covered bandages, and the patient may be given larger liberties, which contribute to his comfort.

After four or five days other methods may be preferable in case medication is necessitated.

The Nose and Throat in the History of Medicine

BY J. M. INGERSOLL, A. M., M. D., CLEVELAND

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There has recently been published in the *Laryngoscope* a series of articles entitled "The Nose and Throat in the History of Medicine," by Dr Jonathan Wright, of Brooklyn. This paper is simply a brief review of these very interesting articles, and is in no sense original with me. Many of the translations of the old medical literature were made by Dr H. E. Handerson, of Cleveland, who is a member of this Association.

In the tomb of an Egyptian king a slab was found, said to date back to the fifth dynasty, about 3500 B. C. On this slab there is a delineation of a physician who was the medical attendant of King Sahura, and the inscription makes it appear that the king ordered it engraved as a testimony of his gratitude to his physician "because he had made his nostrils well." It also appears from the context, that this testimonial was written at the suggestion of the physician himself, thus showing a propensity which has not yet disappeared entirely. This early practician of medicine and

violator of medical ethics was not necessarily a rhinologist, however, for the word "nose" seems to have signified the breath of life and indicates that more than 5000 years ago the nose was recognized as belonging to the respiratory system, a fact to which it has frequently been necessary to draw attention in later and more enlightened times.

Specialties are not a modern idea. Herodotus (484 B. C.) says that in Egypt, "Medicine is practiced among them on a plan of separation,—some undertaking to cure diseases of the eye, others of the head, others again of the teeth, others of the intestine and some, those which are not local."

The Papyrus Ebers is the earliest of all books on medicine and is said to have been compiled about 1550 B. C. In this Papyrus we find the following statement: "There are four vessels in both nostrils, of which two carry blood and two carry mucus." In physiology they were as much at sea, for when the air once entered the nose they lost track of it. "It goes to the heart and the rectum," says the author. In the Zend Avesta we learn that the surgeon must first thrice essay his skill upon a slave or a lower caste of man before operating on his betters.

Pliny (23 A. D.) gives us some curious information in the therapeutics of the Caldeans. He says "that a cold is checked if any one will kiss the nostrils of a mule." "Inflammation of the fauces and the pain will be cured by the dung of kids before they have tasted grass, if it is dried in the shade. Anginas are helped by a goose's gall mixed with elaterium and honey, by the brain of an owl, by the ashes of a swallow soaked in hot water." Such measures are still to be found in the folk medicine of rural communities to a surprising extent.

The Talmud, an early Hebrew-book, speaks of acute inflammation of the throat, probably meaning diphtheria and tumors of the palate, apparently quinsy. It also says that transverse division of the trachea is fatal, but longitudinal section is not.

In the old Hindoo writings, the Charaka and Susruta, we find "By means of forceps—drawing the uvula forward, the physician may cut it with a sickle-shaped knife, above the top of the tongue." And in another place, tonsilotomy is discussed and the statement is made that "if all is cut the patient will die of hemorrhage." Evidently they were familiar with secondary tonsilar hemorrhage. In another place we read, "One should not eject the mucus or phlegm of one's nose in a place that is crowded," a statement which suggests fear of infection. An instrument for eradicating polypi, a sort of curette, is mentioned. Alcamaeon, an old Greek anatomist, dissected the eyes and ears of animals, discovering the optic nerve and the Eustachian tube, thus antedating the latter discovery of Eustachian by many centuries.

In Hippocrates' Fourth Book on Diseases (390 B. C.), the epiglottis is described as a process in the form of an ivy-leaf which prevents liquids from entering the larynx. Dioxippus, a pupil of Hippocrates', says that "the epiglottis divides the food and the drink into the coarser parts which pass into the stomach and the finer parts which pass into the lungs," but Aristotle states that the larynx is only for the passage of the air and the voice. The idea of catarrh extending down to the stomach can also be attributed to Hippocrates, for he says, "Their bellies are subject to frequent disorders, owing to the phlegm running down from the head." He also says, in cases of severe inflammation of the throat "it is necessary to purge the bowels, and to pass tubes into the pharynx, so that the breath may be drawn into the lungs," evidently attempting intubation. His method of removing nasal polypi by drawing a sponge through the nose is well known, and he mentions a substance sometimes found in the nose which, when touched with a probe, feels like stone, evidently a rhinolith.

Cicero (106-43 B. C.) describes the nose and says it has a narrow entrance "lest anything which might be injurious

should enter, and it is always supplied with moisture not useless for arresting dust and many other things."

Celsus, who lived in the beginning of the Christian era, speaks of ulcers of the mouth, seen chiefly in children, as being most perilous, evidently referring to diphtheria, and describes a disease of the nose which the Greeks call 'os'aina (ozena), having many crusts and a foul odor, and adds, it is hardly possible to cure this disease. He describes different kinds of nasal polypi and removed them by operation, and evidently recognized malignant tumors of the nose, and says such growth have an irregular appearance and are not to be operated upon. He also operated on the tonsils and uvula and cut the *frenum linguæ* for trouble in speaking and describes plastic operation for harelip and other deformities of the face.

Galen's description of the physiology of the nose (130 A. D.) can hardly be improved upon today. He says, "It has been stated before in regard to the perforations within the nostrils, how wonderfully the bone situated in front of the ventricles of the brain receives them, being similar to a sponge, and in regard to the passage of these into the throat, how it is arranged that the beginning of inspiration is not directly into the trachea, but there is a certain deflection of it, as a curve, before the breath arrives in the trachea, which arrangement it seems to me has a twofold advantage; first, because the air surrounding us is at times quite cold and the lungs then would be chilled, and secondly, because small particles of dust or of ashes or anything of this kind may not fall into the trachea. In this bend, indeed, the breath may be carried further, but small particles of this kind are arrested so that they first, at this turn, fall upon soft and wet surfaces which are somewhat mucilaginous and are thus able to retain those which fall. When indeed any inflammation or tumor is present or any other affection obstructing the nose, then one is compelled to breathe through the mouth; from which it is possible to know that the nose is first in order as an organ of respiration." He described the mus-

cles and cartilages of the larynx and the cartilages and membranous portions of the trachea, and also the vocal cords, as the source of the voice. He claims to have been the first to discover the recurrent laryngeal nerves.

In discussing nasal polypi, he says, "Sarcoma is the unnatural growth of flesh within the nostril. Indeed, a polyp is a kind of sarcoma." He discusses ulceration of the tonsils and pharynx, and mentions the case of a boy who coughed up some blood, and then some part of the membrane itself, evidently a case of diphtheria.

Aetius is said to have lived as a medical officer of the Court of Constantinople about the middle of the sixth century. He studied and transcribed the works of Galen. He recommends the use of forceps in extracting bones and foreign bodies from the tonsils. When they were in the esophagus, the patient swallowed a sponge with a string attached to it by which it was then hauled up. He also recommended the repeated swallowing of bread boluses in such cases.

These early writers all recommended operative measures for the removal of nasal polypi, and some of them speak of cauterizing the stumps.

In the works of one of the Arabian physicians, 1161 A. D., the following cure for inflammation of the pharynx is recommended: "The second method of cure is the diversion of the cause, and this is performed in a manner which causes the trouble to shift its seat, in short, in rubbing the ears and pulling them forcibly upward, and the painful stretching of them and the application of cups to the opposite part, for these things raise the inflammation and bear it upward. Among those things which are useful in the elevation of it, is that a handful of hair should be grasped in the hands and the patient told to keep quiet. Then put thy feet on his shoulders and drag strongly on the handful of hair, until the skin is pulled up, for by such dislocation will the pharyngitis be raised." This is certainly a rather heroic method of counter-irritation.

These old physicians used a nasal speculum with direct light, tongue depressors, hooks for drawing the tonsils forward for amputation, and various forceps and knives. One of them tells of operating repeatedly on a tumor in the nasopharynx of a woman, and finally cauterizing it, after which it did not recur. He adds, "then the woman left me and I know not what God did with her after me."

Berengar del Carpi, who was a student at the school of Salerno, and taught anatomy at Bologna from 1502 to 1527, first described the frontal and sphenoidal sinuses and he considered the sphenoidal sinuses the seat of catarrh. He also recognized syphillis of the nose and treated it with mercurials.

Achillini, who died in 1512, described the distribution of the olfactory nerves in the nose. In 1563 Ingrassias, a Spaniard, first described the anterior ethmoid cells and the inferior turbinals, and in 1610 Casserius described all the turbinal bones and gave them their present names, and says their function is to break the force of the entering air, and warm and cleanse it.

The ancient physicians knew nothing of the existence of glands in the mucous membrane, and hence supposed that the secretions in the nose came down from the brain through the cribiform plate. Considering this lack of knowledge of the glands, it is easy to understand how they tried to account for the moisture in the lungs by supposing that part of the fluids swallowed entered the trachea.

Schneider, who died in 1680, showed that the moisture in the nose and throat came from the mucous membrane itself. Steno first described the duct which bears his name, in 1660, and also the larger glands of the mouth, eyes and nose; and Malphighi in 1689, first demonstrated the hollow nature of conglomerate glands.

Although the ancient physicians mention opening the trachea to relieve dyspnea, tracheotomy was never practiced much until the middle of the sixteenth century; then gold

and silver tracheotomy tubes were made and the operation began to be used more frequently in desperate cases.

Fallopius, who died in 1562, invented the snare and described it thus: "I take a silver tube, which is neither too broad nor too narrow, and then pass a brass or steel wire, sufficiently thick, preferably the iron wire, from which harpsicords are made. This doubled, I place in the tube so that from this wire a loop is made at one end of the tube, by which, used in the nares, I remove the polyp. When the polyp is engaged in the loop, I push the tube to the root of the polyp, and then pull on the metal threads and thus constrict the root of the polyp and extract it."

Early in the sixteenth century all the accessory cavities of the nose had been recognized and described, but ideas as to their functions were as vague and unsatisfactory then as now.

In 1651, Nathaniel Highmore described more accurately the sinus which bears his name, and mentions a case of suppurative disease of the antrum in a woman who had some bad teeth in the upper jaw. Gooch, an English surgeon who died in 1780, opened the antrum through the nose, and John Hunter also proposed the same operation. The various operations which are still practiced for opening the antrum through the alveolus of a removed tooth or above the teeth, or through the canine fossa or through the nose, were all used by these surgeons in the seventeenth century. They also mentioned cases of polypi and other tumors of the antrum.

Galen first described and named the ventricles of the larynx, but Morgagni's name was given to them because of his more elaborate description of them. Morgagni described the cuneiform cartilages of the larynx as glands, but Wrisberg, in 1780, corrected this mistake, and his name was given to them. Morgagni also discusses deviations and spurs of the septum and says deviations are caused by "the too rapid growth of the septum relative to the other bones of the upper jaw, from which reason there necessarily results a curv

ture." This explanation is still considered the most probable cause of these deformities.

In the early part of the nineteenth century considerable attention was devoted to the nose as the organ of olfaction and its importance as an essential part of the respiratory tract was often lost sight of altogether, and only within the past twenty years have the warming, dust freeing, moistening functions of the nose been brought into prominence. In 1804 Deschamps published a "Treatise on the Diseases of the Nasal Fossæ and Their Sinuses." He distinguished nasal polypi from hypertrophy of the mucous membrane and divided polypi into four classes, (1) fungus, (2) mucous, (3) scirrhous, (4) sarcomatous. His methods of treatment for polypi were the local application of astringents, excision, avulsion with forceps, chemical caustics, and ligature with a waxed thread or silver wire. He discussed the treatment of sinus disease and advocated many of the operations on the sinuses which are still used.

The innervation of the larynx was studied by Dupuytren, Le Gallois, Sir Charles Bell, Majendie, Robert Willis and Sir Astley Cooper, and much valuable knowledge was gained by these men from experimenting on dogs. Majendie was the first man who actually saw, by experiments on animals, the vibrations of the vocal cords.

Trousseau and Belloc, in their great work published in French in 1837, described a method of making applications in the larynx, though it is doubtful if they ever succeeded in placing any medicament in the larynx itself. In America, Horace Green successfully made intralaryngeal applications in 1838. His favorite application was a 5-15% silver nitrate solution. He described his method to one of the New York medical societies and, as intralaryngeal applications were considered impossible, he was compelled to resign and was threatened with expulsion from the New York Academy of Medicine, but finally he succeeded in establishing his claim to be able to enter the larynx.

Bozinni in 1807 used a small mirror placed in the mouth

to examine the larynx, but little attention was paid to it, or similar devices of several other men of this period. Manuel Garcia, a London singing teacher, used a dental mirror with a long handle to study the movements of his own vocal cords, in 1855. About three years later Turck and Czermak of Vienna began the study of laryngeal diseases with the aid of a mirror, using direct light, and Turck advised the use of "a large perforated concave mirror for reflecting either the sun or artificial light," and Semeleder attached this reflector to a spectacle frame.

In 1859, Czermak turned his mirror upward and first demonstrated the nasopharynx. Sir Morrell McKenzie visited Czermak in Vienna, and on his return to London he was among the foremost in advocating the use of the laryngoscope. Louis Elsberg was more active than any other physician in America in pointing out to his countrymen the value of the laryngeal mirror, and presented the result of his studies to the American Medical Association in 1863. In 1866, J. Solis Cohen, of Philadelphia, began a series of communications which have done much to establish the specialty of laryngology in America.

Following the more general use of the laryngoscope, the operative technic in laryngeal work was rapidly developed, and Dr Wright says "the larynges of the civilized world were soon swept so clear of benign neoplastic excrescences, that one today is almost tempted to account for their present rarity by supposing the early laryngologists even removed the tendency to their formation."

Schneider and Santorini described the pharyngeal tonsil, but Luschka, in 1862, described it and the vault of the pharynx more completely.

Wilhelm Meyer reported his observations of this lymphoid hypertrophy in 1868, and later published in London his paper "On Adenoid Vegetations in the Nasopharyngeal Cavity," which was probably one of the most comprehensive medical articles ever written.

The records of ancient medicine tell of the use of ac-

and hot irons in the nose. Votolini, in 1867, developed the technic of electric cautery. Solis Cohen removed an exostosis of the septum with a dental engine in 1878, and Seiler recommended an electric motor for driving the engine. In 1887, Bosworth reported his invention of the nasal saw. In 1884, Carl Koller discovered the surgical possibilities of cocain.

Billroth was one of the first surgeons to extirpate the larynx, in 1873. In 1884, Loffler described more fully the bacillus of diphtheria, previously observed by Klebbs, and in 1885, Joseph O'Dwyer published the account of his persistent endeavors in intubation. The more recent discoveries and advancements in the diagnosis and treatment of pathologic conditions in the nose and throat are within the memory of the youngest of us and cannot yet be viewed from a historic standpoint.

We have followed the story of our art over a period of more than 3,000 years and learned that our knowledge has been built up by the patient, painstaking, laborious exertions of many generations of earnest men, working without expectation of reward. To him who knows the joy of work, this phenomenon needs no explanation. To the rest of mankind no explanation would suffice.

DISCUSSION

Dr John H. McCassey, Dayton: The essayist has given us a very interesting paper, more particularly from a historic standpoint than from the practical side of the subject. He referred to the nose and throat instruments, also operations used in the past, and they are pretty much the same as those used at the present time. He also referred to the nose as the origin of a large percentage of ear diseases. I will say that today we recognize the fact that four-fifths of all of the ear troubles arise from abnormal conditions in the nose and throat, and again we also recognize the fact that a large number of cases of so-called atrophic rhinitis are really cases of inflammation of the sinuses to which he referred—sinuses of the nose and catarrhal conditions there causing the mucus to come into the nose. He referred to the early history of adenoid growths. We know at present that ade-

noid growths are responsible for a large percentage of cases of deafness in children, forgetfulness, inattention, mouth-breathing, snoring, night terrors, etc., and that in order to cure these conditions we must begin at the front of the nose and go back. Then only can we have any permanent results. If we begin at the throat it is uphill work and we accomplish nothing.

What Can We Do to Relieve Deafness Due to Chronic Middle-Ear Catarrh?

BY C. P. LINHART, M. D., COLUMBUS

Deafness due to chronic middle-ear catarrh is one of the common afflictions that come for relief to the busy practician. There is at best not a very encouraging outlook for this class of cases, but if we can do anything to stop the progress of the disease we may receive the commendation of the grateful patient.

Before beginning the routine treatment the primary cause of the difficulty should be removed. Very often there will be found a spur extending out from the septum blocking the way to the free passage of air through the nose, and interfering with the drainage; accompanying this deformity is sometimes found a deflection of the septum. The spur, if sufficient to cause trouble, should be removed and the deflection corrected. In cases in which there is hypertrophy of the turbinals they should be reduced by surgical or medical treatment.

In examining the nose and ears I have noticed that there was a congestion of the drum membrane corresponding to the side of the nose that was occluded, even when occlusion was only temporary from a congested turbinal. At times when the nose is occluded on one side the opposite ear will be found affected. In the latter case it would seem that the current of air passing freely through the unaffected side makes a whirlpool of air in the vault of the pharynx which cools and dries off one part and causes a congestion in another which eventually leads to a chronic

thickening of the mucous membrane and underlying tissue. When the way is made clear through the nose the mucous membrane covering the turbinals should be cleaned with some spray or douche every day until the secretion of the mucous glands becomes normal. This the patient can do at his home, coming to the physician two or three times a week, as is necessary, to receive applications of some medicated lotion, such as nitrate of silver 10 to 20 grains to an ounce, or menthol and camphor, each a dram to an ounce of iodin to stimulate the parts to their normal functions. It will be found that this preliminary treatment will greatly aid in clearing up the congestion in the Eustachian tube and middle ear, even if no other treatment is used.

Usually one ear becomes affected first, then after a time the other begins, and the progress of the disease in the second ear is much more rapid than the first. This is presumably on account of the nerve disturbance. This disturbance of the equilibrium of the auditory nerve facilitates the progress of the disease in the second ear. Often the patient does not know of his progressing deafness until the second ear becomes affected, and complains of deafness on this side when on examination the other ear will be found in a worse condition. When one ear is so deaf that it is of no practical use it should be treated the same as the other, for it is hard to improve one ear without improving the other.

For the treatment of the Eustachian tube and middle ear there is perhaps no better medication than an application by means of the air douche of a stimulating vapor from the combination mentioned above of menthol, camphor and iodin. This when done through the Eustachian catheter and Dench vaporizer, not only medicates the parts by the stimulating vapor, but acts as a massage, particularly in the middle ear, loosening the adhesions and tending to cause an absorption of the thickening of the mucous membrane in the tube and middle ear. In case there is difficulty in introducing the air through the Eustachian tube it has been my

custom, after a month's treatment, to open the tube by means of the electrolytic bougie as devised by Duel. Sometimes one application of the bougie will be found adequate to make the tube sufficiently patulous for the free entrance of air. It does more than this; it stimulates absorption and tones up the mucous membrane and surrounding tissues of the ear.

The progress in these cases is usually slow. Patients will need encouragement, tests with mechanical instruments ought to be made once a month, and the improvement noted so that the patient can see by the examination that he is making a gain, or at least is not losing anything. His friends who expect a great deal of a physician in a short time will tell him that he is not hearing any better, and he will require constant watching and encouragement. You all know that we who hear well, hear much better than we need to for ordinary conversation and that our hearing varies much from day to day; by hearing so well we do not notice this daily variation. These unfortunates are susceptible to every atmospheric change. When the air is damp and heavy the mucous membrane of the nose, Eustachian tubes and ears becomes thickened, it is then that their hearing is duller than usual, for at best they must give close attention to hear ordinary conversation. Then it is fair to presume that people do not talk with the same degree of loudness every day of their lives, so that if the speaker happens to be feeling indisposed his voice weakens and the unfortunate listener is blamed for not hearing so well when it is not his fault at all.

When the Eustachian tube is patulous and there is much thickening of the drum membrane, external massage by means of the Delstanche masseur may be used with benefit.

In some cases I have found, after six months or a year's constant treatment, that there comes a lull in the improvement. I then advise the patient to quit for three c

six months and then return, and usually find that after this rest the ears are susceptible to further improvement.

By sticking to these patients and encouraging them it is surprising how much benefit can be gotten out of some such routine work as is described above. Even when the hearing cannot be materially improved if the progress of the disease can be stopped a great deal of good will have been accomplished.

You all know that in deafness due to chronic middle-ear catarrh there comes a time with some people when without any treatment on the part of the physician the progress of the disease ceases. At times there is even an improvement in hearing. If this occurs without any special treatment on the part of the physician, surely it is reasonable to presume that the medication and treatment of this disease will stop its progress and hasten the period of improvement.

DISCUSSION

Dr John H. McCassey, Dayton: The Doctor has chosen for his paper one of the most difficult affections in the whole field of medicine with which we have to deal. The progress is slower and the clinical results fewer in the treatment of this condition than in almost any other. I find in the treatment of the ear affections one of the best things to do is to put the nose and throat anatomically in as perfect condition as possible, for instance, removing any vestige of tonsils, adenoid growths or obstructions. I find that any harsh measures in meddling with the Eustachian tube is often attended with bad results, and for fear of doing more damage by the introduction of catheters, etc., setting up and intensifying the inflammation, I resort to these measures with great caution. As I said a few moments ago about four-fifths of all the cases of ear troubles are due to troubles in the nose and throat, and in the remedying of these conditions lies our great hope. When these cases come on at first the patient will come to you with the Eustachian tube partly occluded by temporary inflammatory conditions which give rise to an exclusion of air pressure from the inside, and they will complain of a heaviness or dulness in the ear. They will tell you that by put-

ting a finger in the ear it causes this disagreeable feeling to disappear This is due to the fact that by so doing they exclude the air pressure from the outside, and this gives them relief. This is perhaps the reason why so many people with a little stricture of the Eustachian tube go about with a little piece of cotton in the ear, this serving to equalize the pressure of the air inside and outside the ear Now of course by using the Eustachian catheter you free the canal from any obstruction and thus give relief, and in this way bringing about a cure.

Dr B. F. Entrikin, Findlay: I have often seen ear troubles thoroughly disappear on cleaning out the nose and throat. I wish to ask this question: What method do you use in introducing your Eustachian electrode? I tried it on some of my patients and they would not stand it at all.

Dr John M. Ingersoll, Cleveland: The Doctor has outlined the treatment for these conditions of the ear very completely and concisely. He also mentioned a point which is very frequently overlooked, but one which should always be considered, that is, the variation of normal hearing. A little careful observation and testing will show that our hearing-power varies considerably and that the average individual may lose nearly one-third of his hearing-power before he notices that his hearing is less acute for conversation and ordinary sounds.

After this point is passed, the loss of acuteness becomes proportionately greater and the deafness seems to develop much more rapidly. I think that it is a good practice when patients come into the office complaining of any nasal trouble to test their hearing. I keep a record of such tests and if I find that the hearing is below normal I always tell them that sooner or later they are liable to have some ear trouble. and that they should have their hearing tested once or twice a year.

Referring to adenoid growths in this connection the chances for serious deafness are very great unless this condition is relieved. The most advantageous time to treat these conditions, just the same as in any other pathologic condition, is in the beginning. The earlier we can begin our treatment the better the results of that treatment will be.

Dr C. P. Linhart, Columbus, closing discussion: I will try to reply to the discussion in an inverse order. I do not believe that it matters so much what you use in the Eustachian tube or the nose tube so that you use something that will stimulate the parts to assume a normal secretion and condition.

Dr Ingersoll has spoken about the variation in the hearing. My attention was once called to this in a manner which I shall never forget. I was trying to learn French and got to a point where I could understand it somewhat and went to church to hear French sermons, sitting pretty well back. You know when you are listening to an address in a large room, if you only hear one-half of what is actually said you can by the context understand the other half, but if the occasion arises in which it is necessary that you hear every word in order to know what is said, you can understand the circumstances in which a deaf person misses so much. I had to change my position in the church because I could not hear the phrases. I could hear the majority of the words, and after changing my position I could catch the individual words. That drew my attention to the variation in hearing, how one might hear many individual words and yet fail to understand the phrases.

In reference to the method using the electric bougie, I would say that I use the method advised by Duel very closely. I use from 25 to 35 volts of the Edison current running that through an amperemeter. I do not use over 5 milliamperes, to start with using 2 milliamperes, and sometimes do not run it up over 4 milliamperes. I use rubber tissue to insulate the Eustachian catheter. I also have a sponge electrode in contact with the hand, the positive pole, and have that immersed in a salt solution. I introduce the catheter and then push the bougie up into the Eustachian tube as far as it will go easily. We find obstructions in these tubes anywhere from one-fourth to one-half of an inch from the orifice. Where the cartilage and the bone join there is of course a natural narrowing. As soon as the obstruction is reached I turn on the current, as I said 2 milliamperes at first, and as a rule patients do not notice that much. Patients tell me that the pushing of the bougie into the tube hurts them more than the electricity, even when a strength of 5 milliamperes is used. I continue the treatment for from five to eight minutes, in some cases

have continued it for ten minutes, but I think good results can be obtained from five-minute applications. Then the bougie is slowly withdrawn having passed up through the tube and the strictures, if you get through them the first time. If you run into a stricture leave it there until it dissolves so the bougie will easily come out, then the bougie is withdrawn into the catheter before the current is turned off. In regard to the treatment of these cases I think the general practician is coming more and more to realize the importance of keeping the nose clean and in a normal condition and carrying the treatment back through the tubes into the middle ear, and this is a field for the general practician as well as the specialist.

CHAPTER VI—PATHOLOGY

A Case of Diaphragmatic Hernia—Death from Acute Distension

BY T. L. CHADBOURNE, M. D., GALLIPOLIS

[From the Pathologic Laboratory of the Ohio Hospital for Epileptics]

On July 23, 1902, E. L., an inmate of the Ohio Hospital for Epileptics, died rather suddenly with a syndrome of symptoms consisting of pain in the stomach region, dyspnea and abdominal distension. The patient's illness dated only from the previous day. Soon after a dinner consisting for the most part of vegetables and unripe fruit he became qualmish and vomited; after this he was noticeably short of breath and complained of pain in the abdomen. For this deodorized tincture of opium was given in water, which he had no difficulty in retaining, as there was no further vomiting. He remained sitting or lying on a cot until eight o'clock in the evening when he was able to walk a short distance to the hospital ward, and afterward to the water-closet where his bowels moved once. He was then put to bed, and, still complaining of pain in the belly, was given one-fourth of a grain of morphin hypodermatically. The abdomen was still greatly distended. Following the injection the patient slept rather uneasily until five o'clock in the morning. He died about an hour later with a continuance of the symptoms already noted.

The patient was a male 30 years of age, an epileptic, with a marked infantile paralysis of the whole left side with contractures of the hand. The palsy and the *grand mal* seizures to which he was subject dated from an attack of meningitis in his eighteenth month. He is said to have been a normal and healthy infant and aside from his epilepsy and palsy to have been, as a rule, well throughout his life. He was always a voracious eater but never had any vomiting attacks. His relatives do not recall that he ever complained of his chest, and no suspicion of

there being anything unusual in this region was ever entertained. During the patient's residence in the hospital of about a year he was always well and cheerful, although his simple mental condition and his lameness quite incapacitated him.

The necropsy was performed July 23, four hours after death. There was enormous distension of the abdomen which was everywhere tympanitic. There was marked soft edema of the scrotum. Incision of the abdomen allowed the escape of a small amount of gas and a little slightly cloudy fluid. The intestines were much blown up and greatly congested. When the sternum was removed the left side of the thorax was seen to be occupied to the level of the second rib by a part of the abdominal viscera. There was a large defect in the left half of the diaphragm, through which had passed the whole stomach, the omentum, and part of the large intestine beginning about three inches above the *caput* and including a portion of the descending colon. The *caput coli* with the sound appendix occupied the stomach region. About three inches above the *ileocecal* valve there was a small adhesion causing a kink in the bowel which was, however, still patulus. The stomach was of normal color but the large intestine was rather dark. No obstruction other than that possibly caused by the hernial ring could be found. The heart was displaced toward the right so that its border was in the right sternal line. This organ opened in position showed no change beyond a slight increase of the pericardial fluid. After allowing the escape of the gas, the abdominal viscera could be replaced in the abdomen without much difficulty, as there were no adhesions about the ring and they slipped through the large opening easily.

The following measurements, taken after the hardening in formalin, are of course only relative, but indicate the comparative sizes of the two lungs. The right one is 22 x 18 cm., and the left one is 14½ x 8 cm. This latter organ lay close against the spine, it was much compressed, but both lobes contained some air. The left lung presents the following anomaly: a horizontal fissure extending about two-thirds of the way to the root, divides the lower lobe into two parts, the upper division being about one-half as large as the inferior. The opening in the diaphragm cor-

responds roughly to the position of the left tendinous leaflet and measures about 8 x 12 cm. Its edges are quite firm and sclerotic. The esophagus can be traced downward through its proper foramen; it bends sharply upward just at the cardiac end of the stomach to pass through the hernial opening.

The accompanying photograph, which shows the organs from behind, will serve to give an idea of the relations of these structures to each other and to the orifice in the diaphragm. *Legend.* An untouched photograph. Upon the right are shown the right lung (rl) with the corresponding half of the diaphragm (rd) beneath it, and opposite, the compressed left lung (ll). Above the left segment of the diaphragm (ld) lie the organs; the stomach (s), the omentum (o) and the colon (c) that have passed through the hernial ring. This orifice is not well shown but the posterior part of its rim is indicated by the sharp line (r) just behind the cardiac end of the stomach. Lower down is the free border of the mesentery, (m) the intestines having been removed. The cut end of the esophagus is at oe.

Sections of the left lung show areas of collapse of the alveoli alternating with portions where the lung is air-containing. The vessels are engorged, especially the capillaries of the alveolar walls. The bronchi in the compressed areas are collapsed and desquamating. There are a few small areas of round-cell infiltration. Many of the cells of the alveolar walls are vacuolated and some of them desquamating. There is everywhere a great

deal of brown pigment in the cells. The nuclei stain well even in the densest regions of the section. This condition of brown induration is rather more marked in the lower than in the upper lobe.

Sections of the rather dark looking large intestine show a striking desquamation of the epithelium and moderate edema of the submucosa. The nuclei stain well.

It is said by Arnheim[1] that about 400 cases of diaphragmatic hernia had been reported up to 1896. Similar conditions exist frequently in animals (Monnier[2]). As far as most of its anatomic characters go the instance in hand conforms to the general rules for such anomalies. It was not a true hernia, in that there was no sac. Statistics referring to the side involved vary much, Duguet[3] claiming an almost equal participation of the two sides, and Deitz[4] stating that in a series of 282 cases analyzed by him, 261 were upon the left. Most authority goes to bear out the statement that the left half of the diaphragm is the seat of predilection and to this rule our case is no exception. It is most probable that the hernia was a congenital one, if we may judge from the lack of any history of injury and the hardness of the edges of the opening. The fact that the lung was in part air-containing offers no bar to this view.

The organs found in the thorax, stomach, omentum, and colon, were those most often displaced, the usual order being stomach, colon, omentum, small intestine, spleen, liver, *duodenum*, cecum and kidney (Deitz[5]).

While death was directly due to the hernia, as is usually the case (Lacher[6]), it is the particular mode of death that lends the chief interest to the present example. The subjects of a congenital hernia through the diaphragm are likely to die early. Perhaps a majority of all cases are found in infants stillborn or expiring within a few minutes of birth. Frequently there is so much interference with the respiration and such flattening of the upper part of the abdomen as to arouse a suspicion of a malformation of the diaphragm.

Intercurrent affections are responsible for a percentage of fatal terminations and pneumonia seems to be cited very

quently as in the cases of Harris,[7] and of Lawrence.[8] Like the victims of ordinary rupture, the subjects of congenital diaphragmatic hernia live in constant danger of strangulation, and to this accident the deaths of many such adult persons are due. After persistent vomiting, pain, and constipation, they die usually in a week or ten days. Williamson[9] gives an instance of strangulation of the stomach when the patient lived eight days. As with ordinary hernias, those through the diaphragm seem to be proportionately more dangerous when the aperture is small. Maylard[10] and Annequin[11] cite cases that illustrate this point. Ord's[12] patient lived six days and at autopsy there was found a piece of the splenic flexure and some of the omentum projecting through the left side of the diaphragm. Klingelhoefer[13] reports that he was once called at 8 p. m. to a man of 22 who had been ill since afternoon. A few months earlier the patient had had pneumonia and lately had been prone to nausea and vomiting. On the day of the illness he ate a large dinner, after which he complained of pain, and vomited. Examination of the chest revealed signs that lead to a diagnosis of pneumothorax. Death occurred at 7 o'clock the next morning. On opening the thorax the left half contained air and the whole stomach, the spleen, most of the omentum, and 25 cm. of the colon. The lung was much compressed. There was a small perforation in the stomach accounting for the pneumothorax. The author thought the opening in the diaphragm had existed a long time and that the overloading of the stomach and the retching caused the passage of the organs into the thorax and strangulation. It seems as if in cases like the one just quoted the cause of death might be open to another explanation than that given by Klingelhoefer. As Lacher suggests it is not difficult to imagine that the sudden eruption of a considerable part of the abdominal organs into the chest might be so embarrassing to the thoracic viscera as to cause death, by paralysis of the heart, for example. Bergman[14] cites a case that brings out this point. This author after pointing out that diaphragmatic hernia should always be considered among the possible causes of sudden death in apparently healthy s, cites the following history: A man of 23, having

four months previously received a stab-wound in the left side, was taken suddenly ill, after heavy lifting, with symptoms of collapse, vomiting, etc., and died the same night. No diagnosis was made. At the inquest, undertaken because of some suspicion of foul play, death was ascribed to the effects of the sudden entrance of a large part of the stomach into the thorax in connection with a diseased condition of the heart.

Practically the same state of affairs might result from the sudden dilation of organs like the stomach, habitually carried in the thorax and causing but little inconvenience in their ordinary condition. As Lacher puts it:

"A sudden distension either by gas or fluid of any of the organs lying in the thoracic cavity may cause a sudden fatal termination, apparently from paralysis of the heart resulting from the sudden pressure."

This supposition seems to offer the simplest explanation of the course of the short illness of our own patient. The sudden distension of the stomach and the large intestine within the thorax aided by the upward thrust of the diaphragm from the inflation of the small intestines remaining in the abdomen probably caused so much disturbance of the conditions in the thorax as to bring about the patient's death.

UNCLASSIFIED

The Laboratory Movement in Ohio's State Hospitals

BY A. P. OHLMACHER, M. D., GALLIPOLIS

Superintendent of the Ohio Hospital for Epileptics

In the evolution of State medical institutions, particularly in the half-century just ended, problems of administrative and custodial nature have been quite satisfactorily solved, and a new movement in the line of progress has made its appearance. This movement concerns the improvement of the strictly medical administration of the State hospitals, more especially in the direction of the scientific study of their extensive and varied material. The medical profession has demanded that these large and expensive institutions yield some scientific fruits, and this demand has met the approval of the intelligent public. Each year in the last decade has witnessed an improvement in the character of the medical work and in the personnel of the medical staff of our leading American State institutions, and it is now quite the fashion to find in them well-furnished hospitals with good facilities for clinical study, and well-equipped laboratories in charge of special directors. A further step resulting in the centralization of the scientific work, chiefly that relating to advanced original research, has been taken in the State of New York by the establishment of the Pathological Institute of the New York State Hospitals, and in several other States a similar departure is under way or in contemplation.

Ohio finds itself in the position of a number of other States in that some work is in progress in the separate State Hospitals at Gallipolis, Columbus, and Massillon. At Gallipolis the laboratory work of the last five years has assumed

a more extensive range than in the other Ohio institutions, and some original investigation has been pursued and the results published. The experience in other States has shown, however, that the greatest good cannot be accomplished by each of the several institutions in the State maintaining a large independent laboratory, and the scheme of centralization both for purposes of teaching and investigation seems plainly indicated as the next step in the evolution of scientific work in Ohio's State Hospitals; leaving to the separate institutions a smaller laboratory for clinical pathology, for the accumulation of pathologic material, and for certain lines of research adapted to the existing local conditions. Those of you who are familiar with the arguments advanced in other States in which central laboratories have been founded or projected will be prepared to follow without further preliminary the present attempt to give an outline for a similar Institute for Ohio.

Granting that the sympathetic interest of the organized medical profession of Ohio has been aroused in favor of this project, and that a similar chord has been struck among the superintendents of the various State Hospitals—an assumption highly reasonable in its probability—the next step would be to secure the cooperation of the public and particularly of its official representatives. This could be accomplished by bringing the subject to the attention of the Governor and General Assembly in the form of a manifesto indicating the aims and purposes of the proposed establishment, together with definite data as to its scope and plans. Such a memorial, properly, intelligently, and successfully presented, should enlist the active interest of the legislature and executive with the enactment of regulations governing the new institution, and the setting apart of the necessary appropriations.

This project has engaged my serious attention for a period of five years during which I have been associated with the laboratory at the Ohio Hospital for Epileptics, and I venture now to submit a short sketch of the plan I have

formulated for the State Pathologic Institute of Ohio. In the matter of location, Columbus has a number of arguments in its favor. In order to secure the benefits of a pedagogic atmosphere and to be as free as possible from the danger of political interference, the Institute should be a part of the Ohio State University. For purposes of clinical study and to secure fresh pathologic material, it should have free access to the State medical institutions in Columbus—the State Hospital for the Insane and the Institution for Feeble-Minded Youth in particular. Systematic courses of instruction should be offered to the assistant physicians of all the State Hospitals. Each of the out-lying hospitals should employ its local pathologist trained to obtain and properly handle pathologic material, as well as to secure the relevant data, and this material should be accessible for study by the central laboratory either by one of its staff or by the pathologist in the local hospital under the direction of the Institute.

Two functions, teaching and investigation, should be the principal motives of the Institute's efforts. For the latter purpose, it occurs to me as important that the central laboratory should be open to properly qualified workers from the medical profession of the whole State. The assemblage of gross pathologic specimens—that is to say, the formation of a museum of morbid anatomy—should be one of the aims of the Institute. This museum should be sufficiently extensive in its scope to supply the educational pathologic exhibit which the Ohio State Medical Association still lacks, and it should be freely accessible for study by the profession of the State. The strictly scientific memoirs of the Institute, addressed to other special workers in the field of pathology, should be issued from time to time as material accumulates, and it seems very desirable that the publication of these papers should be controlled by the Institute, following the model set by the splendid *Archives of Neurology*, the organ of the Pathological Laboratory of the London County Asylums. Papers of general medical interest could advantageously be published in the current medical periodicals.

Finally, provision should be made for still another class of publications, the desirability of which has been brought to our attention during the work in the laboratory at Gallipolis. I refer to popular bulletins for public distribution, something after the model of those now in vogue in the scientific bureaus of the Federal Government, or like those of our State Board of Health; setting out in plain language the results of the scientific work of the Institute whenever some distinctly valuable contribution in the direction of elucidating the nature of disease or indicating methods of prevention shall have been made. The educational value of such publications, directed to the public supporting the State Hospitals and the Institute, would be very great, and if judiciously prepared much good would be accomplished by them. A special fund providing for these publications should be set aside.

The government of the Institute could be vested in a Board of Trustees, and it seems to me desirable that the Ohio State Medical Association, the State Hospitals, and the State University should be represented in this body, with the balance of power left in the hands of the medical profession so as to secure at all times the predominance of the medical-scientific aspects of its affairs. Its immediate management would call for a Director or Chief appointed by the Trustees, with a corps of properly qualified assistants of his own selection.

Such, in merest outline, is the plan I would suggest for the establishment of the State Pathologic Institute of Ohio. To me, the time for definitely launching this project seems auspicious, and I believe that the voice of this Association as it is now organized, directed through the proper channels, would secure a favorable response at the hands of the officials representing the people of the State of Ohio.

The Control of Prostitution and the Prevention of the Spread of Venereal Diseases

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This paper is presented under this double caption partly because venereal diseases and prostitution are inseparable terms, and partly because the control of prostitution is engrossing the attention of most of the large and many of the smaller communities, solely for the avowed purpose of preventing the spread of venereal diseases. By far the paramount of these two questions is the prevention of the spread of venereal diseases, and whatever preventive measures have thus far been instituted, they have been largely ineffective in character and have been directed against the chief source of infection, prostitution, with a view of either effecting its suppression or control. History is full of attempts of such manifold nature and character as to demonstrate conclusively that suppression is impossible, and control impractical and at best of very doubtful value. I need only refer to a few well-known examples to convince the most skeptical that suppression of prostitution is not feasible. The stern and severe regulations of Maria Theresa, at Vienna, and the Popes at Rome, were promptly followed by husbands prostituting their wives, parents their children, and by a rapid and alarming increase of venereal diseases. The history of the city of Bonn conclusively demonstrates that however severe the measure for the suppression of prostitution may be in character, even to the degree of the infliction of the death penalty upon the transgressors, they foster not only rapine, seduction, bastardy and infanticide, but an undue prevalence of venereal disease in its most aggravated form. Although "Prostitution must be regarded as the fountain head from which venereal diseases originate, and forms the main source of the unbroken vitiated stream of poison which inoculates the living and contaminates the

unborn," (Weiss),[1] a brief quotation from Lecky,[2] in his History of European Morals, will demonstrate how essential is its rolé in the ordination of our social conditions:

"Under these circumstances, there has arisen in society a figure, which is certainly the most mournful, and in some respects the most awful upon which the eye of the moralist can dwell. That unhappy being, whose very name is a shame to speak, who counterfeits with a cold heart the transports of affection and submits herself as the passive instrument of lust; who is scorned and insulted as the vilest of her sex, and is doomed, for the most part, to disease and abject wretchedness, and an early death, and appears in every age as the perpetual symbol of the degredation and the sinfulness of man. Herself, the supreme type of vice, she is ultimately the most efficient guardian of virtue. But for her, the unchallenged purity of countless of happy homes would be polluted, and not a few who, in the pride of their untempted chastity, think of her with an indignant shudder, would have known the agony of remorse and despair. On that ignoble and degraded form are concentrated the passions which might have filled the world with shame. She remains, while creeds and civilizations rise and fall, the eternal priestess of humanity, blasted for the sins of her people."

Hardly less unfavorable are the measures which, from time to time, have been and continue to be instituted in most of the larger communities in this and many foreign countries, not for the suppression, but for the control of prostitution. Although measures for its control have been prepared with the greatest care and wisdom, and have been rigidly enforced with the most conscientious and painstaking effort, it is exceedingly questionable, even in the most favored instances, if the resulting good is ever commensurate with the effected harm.

The most efficient and most carefully exercised control regulating the proper registration of all known prostitutes, their subjection to police surveillance, submission to car-

periodic examination, and compulsory hospital treatment when diseased, even though it could materially diminish the danger of contagion from this particular class, would remain practically ineffective, because it would utterly fail to cope with that larger and more dangerous element, the clandestine bawds, who readily escape the most careful system of medical registration and examination, and spread venereal disease without license or restraint. Control conditions, therefore, by reason of their irksome and burdensome character (restriction of personal liberty, infringement of private and constitutional rights), invariably augments the more dangerous class of clandestines, and drives those under control from their accustomed haunts and thereby defeats salutary segregation. So evident are the shortcomings of most of the control measures, that some of the leading authorities on venereal diseases, I need only mention Neisser, of Breslau, and Blaschko,[3] of Berlin, who have pursued with keen interest, under favored conditions, work accomplished in this direction, both at home and abroad, are exerting their powerful influences to oppose them, because, from a personal disinterested and unselfish standpoint, they regard them as harmful, pernicious and inefficient. Valentine,[4] of this country, states that "the staunchest advocates of registration and periodic examination of prostitutes must admit that the dissemination of venereal diseases is thereby but feebly combated." In Paris, which has had a century of unsuccessful experience, the controled prostitutes number only 4,700, and are rapidly diminishing in number, while the clandestines number conservatively 10,000, and are rapidly increasing. The brothels show the same proportionate decrease, and now scarcely aggregate 60, when formerly they numbered hundreds.

During the past three years Cincinnati has had another regimé of prostitution control by the present Board of Health, entailing regular registration, periodic examination, police surveillance, compulsory hospital treatment, or a workhouse sentence. Although these regulative measures have

been carefully conceived and most rigidly enforced, I have personally failed, from a thoroughly unselfish and disinterested standpoint, to note that our city has been materially benefited by these measures; on the contrary, I cannot but question that they have on occasions been conducive to direct pernicious harm. If they have been formulated for the purpose of preventing the spread of venereal diseases, as recently affirmed by those directly interested, my personal experience, both as regards private and clinical practice, leads me to sincerely believe that even in this direction it has proved to be a signal failure. Unfortunately, owing to some recent changes, my clinical records do not permit me to quote statistics, but I am secure in my belief that venereal disease, among this class of patients, is of as frequent occurrence and exists in as aggravated form as prior to these preventive innovations. Moreover, by far the larger number of clinical venereal cases, and I daresay almost exclusively, trace their origin to the noncontroled clandestine bawds. As regards private practice, my records show that out of 606 dermatologic and venereal cases which came under my personal observation in 1900, 84, or 12.2% were gonorrheal, and 51, or 8.4% were syphilitic infections. In 1901, out of a total of 833 cases, 105, or 12.6% were gonorrheal, and 82, or 9.8% were syphilitic. In 1902, out of a total of 1,133 cases, 165, or 14.6% were gonorrheal, and 75, or 6.6% were syphilitic. For the first five months of 1903 (from January 1 to May 20, inclusive), out of a total of 768 cases, 125, or 16.1% were gonorrheal, and 67, or 8.7% were syphilitic infections; or the same ratio estimated for the entire year would make out of a total of 1,843 cases, 300 cases of gonorrhea and 161 cases of syphilis.

Dermatology and Venereal Diseases, Total Cases.	Cases of Gonorrhea.	Cases of Syphilis.
1900..... 606	84 or 12.2%	51 or 8.4%
1901..... 833	105 or 12.6%	82 or 9.8%
1902.....1133	165 or 14.6%	75 or 6.6%
1903*.....1843	300 or 16.1%	161 or 8.7%

*Estimated for the year, from the records of the first months, January 1 to May 20, 1903.

From the foregoing table it can readily be seen that for the past four years, during which time a system of prostitution control has been inaugurated and carefully and systematically conducted, in all of its details, the cases of gonorrhea in my private practice have steadily increased from 84 to 300 per year in number, or from 12.2% to 16.1% of the entire number of dermatologic cases, and the cases of syphilis, with slight variations, from 51 to 161 per year, and from 8.4% to 8.7% of all cases. The control, therefore, as at present exercised, is neither able to prevent a material increase in the total number of venereal cases, nor, what is more significant, to prevent proportionate increase in the percentage over other forms of dermatologic disease.

I am frank to acknowledge that these figures, derived as they are from a strictly private practice, bear to themselves sort of personal equation. They have been collated from records, gathered without reference to this particular phase of the question, in collaboration with Dr Clarance A. Ihle. The number is sufficiently large to carry some weight and I am firmly of the opinion that they represent a fair average of the prevalence of venereal diseases in private practice, under existing circumstances, in special reference to their increase or decrease. I am strengthened in this opinion by the impressions of some of my confreres, men who enjoy considerable venereal practice, who have personally stated to me that their results do not materially differ from mine. The increase in number and percentage of venereal cases in my own practice is significant when we take into account that during the past four years four cases out of five are dermatologic, that dermatology is my specialty, and that venereal diseases have been treated as a side specialty, for the most part as an integral and almost inseparable part of dermatology. In order to determine with greater accuracy and precision to what degree the spread of venereal diseases was prevented by the present system of control, the source of infection has been carefully traced in each individual case. as accurately as possible, for the past six or seven months,

and recorded. If the control is as effective as its most ardent supporters would have us believe relatively few cases could be traced to the individuals who are under the ban of medical registration and examination. My results showed that not relatively few, but, on the contrary, a surprisingly large number could be traced to control prostitutes, 30 for the months of November and December, 1902, against 38 contracted from Cincinnati and its neighboring clandestines, and seven from foreign sources. My records from January 1 to May 20, 1903, are equally significant, and according to the following table, show 57 control infections against 69 of clandestine nature.

TABLE JANUARY 1, 1903, TO MAY 20, 1903.

Source of Infection.	Gonorrhea.	Syphilis.	Ulcus Molle.	Condyloma Acuminata.	Total.
Cincinnati clandestines	49	19	...	1	69
" exam. prostitutes	43	8	4	2	57
Foreign sources	10	10	2	...	22
Innocent infections	1	8	...	...	9
Record unobtainable	22	22	...	...	44
Total	125	67	6	3	201
Total of all dermatologic and venereal cases					768

From the foregoing it can readily be inferred that the control, as at present exercised, is not a very effective one, that most of the cases are contracted, even in private practice, outside its pale, and that the regimen exercised over control prostitutes, however rigid, or carefully carried out, does not render them noninfectious in character.

If the system was simply ineffectual and powerless to show positive results, I, for one, would not endeavor to criticise it unfavorably, or invoke its just condemnation. Sincere as is my belief from a thoroughly disinterested and unselfish standpoint that it is powerless and impotent to materially prevent the spread of venereal diseases, I am doubly assured

that its influences in other directions are decidedly pernicious and that it effects material harm.

First of all, control with periodic examination gives to the laity a false sense of security. There is no more powerful conservator of social purity, I believe, than the fear of impending danger to the transgressor of contracting a venereal disease; this is materially minimized by the assurance of the periodic examinations made for the purpose of determining the absence of infectious diseases. In Cincinnati, this assurance is increased by the issuance of a diploma-like certificate, which "must be exhibited conspicuously in the room occupied by the person to whom it is issued." Though clearly evident that this practice is alluring and attractive to the inexperienced and uninitiated, it suffices to state that it is a common experience to many practicians to meet infected patients, who, under the guise of this false security, have indulged in an intercouse that they otherwise would have abstained from, or have thrown aside the protection that a condom affords. That the issuance of these certificates is pure deception and fraud is evident from the innumerable infections which can be traced to the possessors, 87 cases occurring in my own practice in seven months' time.

It is generally conceded by most authorities, Blaschko, Jadassohn, Neisser, *et al.* that ½ to 1/3 of the prostitutes, even in control cities, are constantly infected with gonorrhea, and that at least 80% of them are infected with syphilis during their first year of practice. Havas,[7] states that after the gonococcus has passed the cervix and reaches the adnexa, the disease is incurable, and the prostitute becomes a source of constant infection. In the light of these facts, it is certainly farcial, I may dare say criminal, to grant this highly contagious class of individuals a certificate, with the injunction that it be prominently displayed, reading that "we have made a careful examination of said ——, and find her free from any venereal or contagious disease."

If these certificates were issued only to prostitutes living in public houses, or alone, and more or less clandestinely

pursuing their calling, though seemingly uncalled for and unjustified by clinical experience, it would be more pardonable than the much graver offense of granting them to masseuses, manicure artists, etc., who under the guise of an affected calling are licensed to practice prostitution, without fear or restraint, and under the cloak of this deception to advertise it in the daily press and thereby virtually place an additional premium on vice. A large quota of recent infections in my practice have been contracted in a certain massage and manicuring establishment, whose advertisement appears almost daily, and whose inmates are regularly examined and are given their certificates, and this control, in Cincinnati, we are assured, is practiced solely for the purpose of preventing the spread of venereal diseases.

But the sacrifice of the many unsuspecting and falsely assured innocents on the alluring altar of venereal disease is not the only harm that can be attributed to control. The power which it exercises over these unfortunates becomes almost absolute and from which there can be no appeal. It can, and often does, usurp constitutional rights, restrict liberty, infringe personal privileges, make hospital treatment compulsory, or even impose a work-house sentence. These conditions not only pave the way for an uncalled-for interference, and creates opportunities for blackmail and personal gain, but by rendering the position unduly hard, tends to materially diminish the number of controls and to increase the more numerous and more dangerous clandestines. The fear of the penalties which may be imposed, compulsory hospital treatment, etc., often impels these individuals to conceal from their examiner the various forms of venereal lesions (mucous placques, condylomata lata, gonorrhea, etc.), to which, if his work it at all effective, his attention should be particularly directed. Formerly they took interest in bringing these lesions to the attention of their private physician, but of late the fear that this knowledge may reach the ears of the examiner and incur his displeasure, removes them also from this attention. There can be no question but the

exercise of power has been very much abused in Cincinnati on occasion. There have been some very flagrant instances, although the vast majority have, no doubt, been carefully concealed. A striking example was the recent suicide of a young girl whose home was wantonly invaded by an officer who arrested her on the illegal charge of loitering, and threatened her with dire imprisonment, for the trivial offense of having kept company with a man, whose wife's jealousy she had aroused without just cause. No officer, except one schooled in this nefarious system, would have made such an arrest without cause or warrant, or would have committed so inviolate a breach. The Coroner's official report is as follows:

"This act of self-destruction was the outcome of either a dread of punishment, or fear of public shame, or both. The deceased had been placed under arrest, on July 13, 1902, by two police officers and taken to the station house, where a charge of *loitering* was placed against her. She was released on bond and was to appear the following day for trial. Seemingly very much impressed by the disgrace of her arrest, she secured from a drug-store a quantity of morphin, which she swallowed, and sitting down to write a note of farewell to a friend, drifted into a stupor before she could finish her communication, in which condition she was discovered by her sister and father, by whom she was sent to the City Hospital, where she died, without regaining consciousness.

"According to testimony she was arrested for loitering, because it was alleged that she was 'stealing' the affections of a husband from his wife. There is no evidence to show that she was a woman of disrepute, and other than mere rumor, there is nothing to indicate that the relation between herself and the man, whose affections she was supposed to be deflecting from his wife, were in the least improper. Repeated accusations of undue familiarity with this man, made by neighbors and the man's wife, greatly distressed her to such degree that all that was sensitive in her nature was aroused, so that life itself became a bitter burden.

"The death of her mother six years before let grief creep into her life at an early period, and the mental anguish that her accusers were creating made it the more possible for her

to despair life, because the very one to give her the most courage was in her grave.

"The officer who made the arrest had been appealed to by the accusing wife to break up what she held to be an illegal relation between her husband and the deceased. He had warned the deceased, but hearing that the relations were still in progress, adopted the extreme measure, which he did, and gives as his excuse, that he was acting solely in the interests of the little children of the accused husband, intending by the arrest to more forcibly impress the deceased with the seriousness of her conduct. He seemed to hold the young woman alone responsible for the affair, never at any time having attempted to take to task or endeavor to correct the conduct of the husband whose affections, if transferred, must surely have been with his consent. The arresting officer's motives may have been good, but his methods, if not cruel, were untimely and the most unfortunate he could have chosen."

Another example was the suicide of a beautiful young girl of respected parentage, who also died within the past year at the City Hospital, because she had been threatened with arrest and prosecution at the hands of an influential citizen whose displeasure she had unfortunately incurred. A striking example, illustrative to what excesses such an elastic system of blackmail can be carried, occurred in my presence in one of the control wards of the City Hospital. One of the unfortunates who had apparently served out her full quota of time, and imagined that she was sufficiently free from her ailments to merit her just release, addressed the controling staff officer, by stating, "Say, you, when are you going to let me out?" I am assured in my belief that the unfortunate one never intended the remark to be uncivil or disrespectful, but the autocratic staff officer, who, incidently, is one of the most active participants and ardent advocates of prostitution control, replied, "What you say, YOU, to me, I'll teach you better; you will stay four weeks for that." The Czar of Russia could not have exercised over his own subjects more absolute or arbitrary control, and her injured feeling, restricted liberty and infringed rights, gave vent to

flood of tears. Instances of this character could be multiplied almost indefinitely. Individuals belonging to this class are almost daily subjected to the indignities of arrest and persecution on the illegal charge of loitering, and if not illegally confined in a hospital or prison, suffer infringement of private rights and restrictions of personal liberty. It frequently happens that these individuals, when illegally confined, will buy their personal freedom and liberty at the price of a marriage compact, which is the equivalent of making a hollow mockery of one of the most solemn, holy and impressive ceremonies of our higher, enlightened civilization.

We will credit the officers who exercise the present prerogatives of control in Cincinnati with being honorable, conscientious and upright, although somewhat blind in the supreme faith of their personal efforts. The facilities for exercising an unfair indulgence, and for secretly extorting blackmail in return for protection, are so pronounced that if perchance control were exercised by officers who were unscrupulous or dishonest, they could rapidly and successfully inaugurate a foul and degraded system of corruption. I am informed that these individuals, even under the present system, are in such moral dread of an unfair discrimination, or an unjust interference, that they seek medical attention only from the regular examining physicians, and are timid in seeking attention elsewhere, however desirable in character, for fear that such information may reach the ears of the examiner and incure his displeasure. This influence is decidedly pernicious, because any measure which tends to discourage medical attention, only tends to promote the spread of venereal diseases. This same moral fear of the examiner, and the compulsory treatment he is able to impose, also prompts these individuals to discourage every form of medical attention and to hide any knowledge which would lead to the discovery of any form of venereal infection to lavage freely immediately prior to each examination and to conceal venereal lesions of every infectious form. As long as the prostitute looks upon the examiner, not as a physician

and benefactor, but as her persecutor and prosecutor; so long will any measure for the exercise of a successful control and prevention of the spread of venereal diseases defeat the very object it seeks to attain. Medical service to this class of patients should be freely given, gratuitously bestowed and the very best that can be acquired and not imposed combined with compulsory hospital treatment at $1.00 per day. In order that these unfortunates should be encouraged to freely seek proper attention, it should be given with all the privacy and refined and delicate detail that is awarded to the treatment of these cases in careful private practice, not by officials wearing the badge of supreme authority, but by those having nothing else to recommend them except their painstaking, conscientious efforts, and their personal attainments, as able, successful and efficient physicians.

The present Cincinnati Health Officer and official head of the prostitution control, stated recently that the 500 regularly weekly examined prostitutes constituted 3/4 of the source of infection of venereal disease. I do not know the source of his information, but personal knowledge of the self-supporting industrial female life in Cincinnati, the large number of dependent females employed in our numerous factories, the unhealthy moral atmosphere in which they work and live, the close association of the sexes in the workroom, their love for luxury and personal extravagance, not commensurate with their usually moderate income, lead me to believe that the clandestines number at least 10,000, and that granting that the control prostitutes average five or even ten callers a day, they by no means constitute the greater source of infection. The fact that 69 cases of venereal disease were contracted in five months from Cincinnati clandestines, against 57 from control sources in a private practice speaks for itself that the greater source of infection is from the clandestines, especially when we consider that these infections occurred for the most part among a well-to-do class, who can easily afford the relative greater expense incurred in control indulgence. In the more

numerous indigent, and for the most part laboring class of individuals, the proportion of the clandestine infections greatly predominate, and in clinical practice it is almost the exclusive source of infection.

We have now considered the inefficiency of the present control, its harmful and pernicious influences and the dangers which may attend its unscrupulous administration; we will now consider briefly a few additional measures which, if properly conceived and consistently carried out, would, I believe, insure to the prevention of the spread of venereal diseases. First and foremost is, I believe, a thorough education of our youth, which should become an integral part of their general schooling and training, of the dangers that attend improper relations. That continence and abstinence are strictly compatible with the best of health and well-being. That in case they should feel unable to properly restrain their inordinate passions, and I state this with some reservation as applying particularly to those individuals and physicians who believe that inordinate passions must be sexually gratified, and their watch-word rests in the unsuppressible and uncontrolable character of prostitution, indulgence should be sought only from proper sources, and that they be given the best form of instruction in regard to self-protection. That the use of the condom in such instances be properly encouraged, and similar measures of reliable protection advocated. How effective these individual measures prove to be in preventing the spread of venereal diseases can be readily appreciated by the experience of R. Michaels,[8] surgeon on one of the ships plying between Germany and Yokohama. On former voyages he experienced that at least 5%, once as many as 23%, of the crew were infected with venereal diseases after leaving Yokohama. On one particular voyage he carefully instructed the entire crew of 200 men to carefully instillate a few drops of 10% protargol in glycerin, immediately prior to and subsequent to the act and to cleanse the penis with a piece of sublimate soap, with the result that not a single

new case of gonorrhea developed and only one case of syphilis (in an individual who failed to use the prophylactic measures), following the nine days stay in port.

When we consider the numerous causes which predispose prostitution, one of the most potent factors, not even second to the fear of contracting venereal disease, is a sense of security against subsequent conception and parturition, and the resulting publicity and social disgrace. This feature is so alarmingly prevalent in Cincinnati that a wholesome fear in this direction no longer exists, and a great premium is thereby placed upon countless individuals to take the initial step that invariably leads to remorse and despair, and often to degradation, disease, abject misery and an early death. Abortion is practiced with such license and freedom that there are men who have gained special reputation in this field of work among the masses that their names in this connection are almost house-hold words. Some of them occupy prominent offices in our high-class office buildings, and it is not an uncommon experience to find patients astray in the wrong office, inquiring for "the doctor in the building who does that kind of work." I am assured in my own belief that if the health department had exercised one-fourth the effort expended in controling prostitution in correcting this flagrant and nefarious malfeasance, it would have rendered 10 times more grateful and actual service, and at the same time would have exercised a more genuine control that would have in the course of time prevented, in greater measure, the spread of venereal diseases.

There are a number of more legitimate and far more productive fields for the exercise of measures for the prevention of the spread of venereal diseases than the exercise of a doubtful and oppressive control over prostitution. Aside from the proper education of our youth, the instruction in individual prophylaxis and a control over licentious abortion, regulative measures should be adopted inquiring into the self-supporting character of female industrial life.

the close association of the sexes in the work-room, the immoral atmosphere in which they work and live, remuneration commensurate to a degree with proper living and being, enactment of legislation for the salutary segregation of public and clandestine prostitutes, and its enforcement within bounds of propriety, justice and reason. It should abolish common drinking-cups, utensils, and promote education along the lines of prophylaxis in regard to the dangerously unclean, dental, manicure, chiropodist and surgical instruments, and the prolonged infectious character of venereal diseases.

Time and space do not permit me to give to these and many other measures (the establishment of homes for the tempted and fallen) the attention they justly deserve; inasmuch as they are somewhat foreign to the subject of the control of prostitution, in reference to the spread of venereal diseases, they scarcely merit special consideration in this paper.

A few quotations, recently gleaned from some of our leading specialists relative to the subject, will not, I trust, be out of place at this juncture. Stelwagon, of Philadelphia, states, that "we will never make headway in the control of venereal diseases by legalizing prostitution, or recognizing it as a legitimate calling." Gottheil, of New York, says, "municipal regulation, as practiced in many of the European cities, is neither successful or desirable." E. L. Cocks, of New York, says "a streak of over-conscientiousness and try to do something, and the result has been that prostitution, which was confined to the tenderloin, has been scattered all over the city. Under the new order of things, prostitutes are now our neighbors."

To briefly recapitulate suppression of prostitution is impossible, and control is impractical; it is absolutely incapable of coping with the larger and more dangerous class of clandestines, and it is powerless and impotent to materially prevent the spread of venereal diseases, emenat-r from those directly under control. Its influences are

decidedly pernicious and harmful, inasmuch as it defeats salutary segregation, increases the more dangerous class of clandestines, restricts liberty, and infringes personal and constitutional rights. It legalizes crime and fosters disease and immorality by imparting a false sense of security, and is virtually a deception and a snare. It creates opportunities for blackmail and personal gain, brooks an unjust and often unendurable interference, and discourages necessary and salutary medical attention. There are far more rational and legitimate measures for the prevention of the spread of venereal diseases along the lines of the suppression of abortionists, and the inculcation of general and individual education and prophylaxis.

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DISCUSSION

Dr Thad. A. Reamy, Cincinnati: I am sorry that the time for discussion is so short, as a paper of this kind requires much discussion. I am also sorry that the essayist did not give us a remedy. This question is one of the most serious ones which comes before the medical profession. The Doctor's statement in reference to the examination of the prostitutes in Cincinnati and the control of prostitution is correct, yet it is impossible to come to any conclusion of value from the experience of any one individual in private practice. There must be a sharp distinction drawn between infection from gonorrhea and syphilis, and prostitution. They are very closely related to each other but there is an immense amount of prostitution without infection. There is also an immense amount of infection not due to public prostitution; and the direct

harmful influences of syphilis and gonorrhea upon the generations past that exist now, and upon those that are to come, are tenfold greater than that of tuberculosis. There never was a word uttered by any single tongue more true than that from the elder Gross when he stated that from 30 to 40% of all diseases of every form could be traced to syphilis, or gonorrhea. There is a foolish idea which is prevalent among many that prostitution is due chiefly to temptation offered to men. I made it my duty for 12 years to ask every woman who had fallen and who came under my charge when in the Cincinnati Hospital, and for 10 years prior to that, and also for years since, whenever I have had an opportunity, as to where the responsibility of her downfall lay, and in from 80 to 90% of the cases the responsibility was not with the poor unfortunate creature that fell a victim to environment and other influences almost beyond her control. The idea that because of the anatomy and physiologic functions of the female, when once she has had gonorrhea, she cannot be cured, but that a man can be easily and permanently cured is not true. There is just as much chronic disease dependent upon, and it is just as difficult to cure it in men as in women.

As to the remedy, it is not in the law. The law is wholly inadequate. It is true of men and of women that there is within them this instinct for the perpetuation of the race. It is associated with the organism and in relation to the highest qualities of the soul, and mind, and moral nature. It is not sinful but of divine implantation. This peculiar association is a great mystery, which no one is able to explain. Why or how we inherit certain qualities and traits of character is just as hard to explain. We see one man come forth and pass through life with a strength of character which he has seemed to inherit from another; no temptation betrays him. He stands a moral giant. We see another who does not seem to have these qualities, etc. We see many men whose hearts are light and free, who wish well to their fellow men and to themselves, but in an unguarded moment they yield to temptation. In women the maternal instinct, the yearning for motherhood, is strong, intensely so, yet sexual passion seldom arises or prevails in the normal woman until aroused directly or indirectly by association.

It is in abeyance even then, and under the inhibition of

her loftier moral and religious nature. She loves virtue because of the sweetness of its purity. With men it is different; the sexual propensity arises with the development of the sexual organs. It awaits no outside influences. It is held in abeyance by the man's strength of character, his respect for a lofty manhood, and for the laws of society and the laws of God. He is likewise chivalrous toward women, and honors their rights. He and she now alike stand with sure footing upon the rock of truth. Congenial virtue flourishes.

Now the only solution of this matter is teaching our children self-control and a love of virtue, and let this self-control and love of virtue be ground into them from both sides of the house. If our children are to be pure their ancestors must be pure.

Let this be so engraven upon men and women that when they come to enter the married relation there will be no contamination, but purity in the heart. This is the only foundation upon which society can rest. It must be a structure built upon the eternal principles of virtue which are instilled into the heart by example and precept from earliest childhood.

Dr Frank Warner, Columbus: The gentleman who has just read the paper tells us that in Cincinnati they require a certificate to the effect that all of these women have been examined and found free from venereal disease. If the Cincinnati Board of Health is carrying on that process they are doing it without sanction of the law, for last year the Legislature abolished the law which permitted Boards of Health to exact examinations of that character. This law was abolished by the Legislature for the reason that they considered it was encouraging vice. In the first place it did not control, and in the second place it encouraged vice. Dr Reamy was anxious that a remedy be offered. I can offer only a partial one. If examinations are to be made at any time and on anyone, it seems to me more logical to require of every man visiting a house of ill-repute that he bring with him, to present there, a certificate certifying that he has been examined and is free from venereal disease.

Dr John A. Thompson, Cincinnati: It would seem to the disinterested reader of the remedies suggested for the regulation of prostitution that the only object of the origi-

nators of the systems was to make vice safe and easy for the male. The system of regulation and inspection as practiced in Paris and in Cincinnati at the present time seems to me to have no other logical explanation. Now the man who would attempt to suppress tuberculosis, kindred disease of syphilis, by examination and regulation of the female tuberculous cases alone, would be laughed out of any medical society, but we have allowed a similar incongruity and absurdity to exist in reference to the diseases above mentioned. In my work not infrequently I see venereal diseases in the form of mucous patches in the throat. It is not an uncommon or unheard-of experience to have a girl say in the office, "Hurry up and get me cured quick, for I have to be inspected next Tuesday." It is not an unusual thing by any means for that girl to come back on the next Wednesday and say that the examiner never saw the sore. The system is not only inadequate, but it is based on entirely wrong principles of requiring an examination of only one sex. We will have arrived at the right remedy only when we apply the law or system of prevention without any reference to the sex of the individual, requiring the same standard of health of both. Personally, I believe, as Dr Reamy has said, that the only remedy is in the education of the children in social purity and morality, but in the meantime we are contributing to vice when we permit the enforcement of a one-sided ineffective regulation.

Dr M. L. Heidingsfeld, Cincinnati, closing discussion: In closing I beg to acknowledge my sincere appreciation not only for this kind and generous discussion, but also for the sentiments of sympathetic accord. My chief object in presenting this paper before such a representative body was for the purpose more for showing that the control measures as at present exercised exist for evil rather than for good, and readily permit flagrant abuses, than to elaborate measures more salutary and beneficial in character. The practical solution of this difficult problem entails, first, by the complete abrogation of the pernicious control, and secondly, self-solution along the legitimate lines roughly indicated in the paper. The illegal character of this control is strongly impressed upon the minds of all Cincinnatians and I beg to thank Dr Warner of Columbus for again directing to it particular attention. Dr Reamy has sounded the key-note to the situation in alluding to

education and the thorough evolution of this phase of the question will effect its readiest and most complete solution. The personal character of the tables in the paper has already been acknowledged, but I must earnestly protest against any disparagmement of their value or significance by Dr Reamy. They form the only source of reliable information obtainable and are the only means which can conclusively demonstrate whether or not the system stands for good or for evil. Moreover, I am informed that they tally with the experience of two of my most active and successful confreres, Drs Weaver and Pearce, who are engaged in similar practice. Whether they be personal or otherwise, they conclusively demonstrate one fact, which by the way is by no means a unique experience, that a very large number of venereal infections can be readily traced directly to the control prostitutes. I thank Dr Thompson for his warm encouragement and support, but I do not concur in the parallel he draws with tuberculosis. While it is true that they are both granulomata, the diseases differ otherwise so materially in their nature, method of spread and development that the analogy stops at that point and the same preventive measures no longer apply. If the analogy were still further carried out, we might say with equal propriety that the control measures for leprosy or actinomycosis also apply to syphilis and tuberculosis.

CHAPTER VII—THE MINUTES

Including Reports of Officers and Committees

The Minutes of the Fifty-Eighth Annual Session of the Ohio State Medical Association

The House of Delegates of the Ohio State Medical Association was called to order for the first time by the President, W. C. Chapman, of Toledo, at 11:15 a. m., Wednesday, June 3, 1903, in the Lecture Room of the First Presbyterian Church, Dayton.

The Secretary was instructed to call the roll, and 39 delegates and officers responded. Those present were:

A. S. Rudy	from	Allen County
R. Y. Stephenson	"	Brown County
D. C. Houser	"	Champaign County
J. E. Myers	"	Clark County
R. T. Trimble	"	Clinton County
E. C. Carr	"	Coshocton County
G. W. Moorehouse	"	Cuyahoga County
R. E. Skeel	"	Cuyahoga County
C. F. Clark	"	Franklin County
A. P. Ohlmacher	"	Gallia County
H. F. Lorimer	"	Greene County
W. U. Bradford	"	Guernsey County
R. B. Hall	"	Hamilton County
J. A. Thompson	"	Hamilton County
A. T. McClung	"	Jackson County
Wm. F. Marting	"	Lawrence County
E. Cameron	"	Lorain County
H. Bamberger	"	Lucas County
J. G. Kellar	"	Lucas County
A. M. Crane	"	Marion County

W. R. Thompson	from Miami County
G. B. Evans	" Montgomery County
George Goodhue	" Montgomery County
H. T. Sutton	" Muskingum County
N. T. McTeague	" Perry County
D. W. McQueen	" Preble County
A. H. McCullough	" Richland County
J. S. Rardin	" Scioto County
J. W. Costolo	" Shelby County
T. Clarke Miller	" Stark County
J. E. Groves	" Tuscarawas County
B. H. Blair	" Warren County
W. C. Chapman	President
P. Maxwell Foshay	Secretary
H. Bonner	Councilor Second District
J. H. Jacobson	" Fourth District
T. C. Martin	" Fifth District
J. C. M. Floyd	" Seventh District
J. E. Sylvester	" Ninth District

R. T. Trimble, of Clinton County, brought up the matter of crippled and deformed children in the State. This matter was referred to the Council.

G. W. Moorehouse, of Cuyahoga County, moved that a committee be appointed to consider the advisability of districting the State.

E. C. Carr, of Coshocton County, presented a request for a decision upon the eligibility to membership in County societies. On motion it was referred to the Council.

C. F. Clark, of Franklin County, proposed an amendment to Section 3, Chapter XII of the By-Laws; also to Section 5, Chapter XII, of the By-Laws.

T. Clarke Miller, of Stark County, moved that a committee be appointed to consider all proposed amendments to the Constitution and By-Laws. The President referred the motion to the Business Committee.

A. W. Rush, of Darke County, stated the difficulty in reorganizing the Darke County Medical Society.

Horace Bonner, of Montgomery County, and Councilor, made the point of order that A. W. Rush could not be heard

because he was not a delegate from an affiliated Medical Society. The Darke Countv difficulty was then referred to the Council.

T. C. Martin, of Cuyahoga County, and Councilor, asked that a special committee on amendments be appointed.

T. Clarke Miller, of Stark County, urged the necessity of a special committee on amendments.

It was voted to appoint such a special committee and C. F. Clark, of Franklin County, moved that his amendments be referred to such special committee.

On motion of J. C. M. Floyd, of Jefferson County, and Councilor, it was moved and carried that a Business Committee be appointed consisting of four members, including the Secretary as Chairman. The President appointed Brooks F. Beebe, of Hamilton County; A. P. Ohlmacher, Gallia County; and G. W. Moorehouse, of Cuyahoga County, and the Secretary as Chairman.

ELECTION OF THE NOMINATING COMMITTEE

John A. Thompson, of Hamilton County, nominated Rufus B. Hall, of Hamilton County, from the first Councilor District. Elected.

Horace Bonner, of Montgomery County, and Councilor, nominated George Goodhue, of Montgomery County, from the second Councilor District. Elected.

A. S. Rudy, of Allen County, nominated A. Melville Crane, of Marion County, from the third Councilor District. Elected.

Julius H. Jacobson, of Lucas County, and Councilor, nominated H. Bamberger, of Lucas County, from the fourth Councilor District. Elected.

R. E. Skeel, of Cuyahoga County, nominated E. Cameron, of Lorain County, from the fifth Councilor District. Elected.

T. Clarke Miller, of Stark County, was nominated by Thomas Charles Martin, of Cuyahoga County, and Councilor, from the sixth Councilor District. Elected.

J. C. M. Floyd, of Jefferson County, and Councilor, nominated J. E. Groves, of Tuscarawas County, from the seventh Councilor District. Elected.

N. T. McTeague, of Perry County, was nominated from the eighth Councilor District. Elected.

John E. Sylvester, of Jackson County, and Councilor, nominated W. F. Marting, of Lawrence County, from the ninth Councilor District. Elected.

C. F. Clark, of Franklin County, nominated F. F. Lawrence, of Franklin County, from the tenth Councilor District. Elected.

John A. Thompson, of Hamilton County, moved that the Nominating Committee arrange the terms of office of the Councilors. Remarks were made by the President, Thomas Charles Martin, and again by John A. Thompson.

Horace Bonner, of Montgomery County, and Councilor, moved that the making of Councilor Districts be included. The suggestion was accepted by John A. Thompson. T. Clarke Miller endorsed the motion, which was adopted.

W. F. Marting asked if there was any provision for filling vacancies. The question was referred to the Committee on Constitution.

ELECTION OF THE COMMITTEE ON SCIENTIFIC WORK

R. B. Hall, of Hamilton County, nominated B. H. Blair, of Warren County, and he was elected. Julius H. Jacobson, of Lucas County, and Councilor, nominated John G. Kellar, of Lucas County, and he was elected. The Secretary is the third member, and Chairman.

ELECTION OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Thomas Charles Martin, of Cuyahoga County, and Councilor, was nominated by A. Melville Crane, of Marion County, and was elected. John E. Sylvester, of Jackson County, and Councilor, nominated R. T. Trimble, of

Clinton County, and he was elected. R. B. Hall, of Hamilton County, nominated N. P. Dandridge, of Hamilton County, and he was elected. The President and Secretary are the two remaining members of the Committee.

It was moved and seconded that the selection of the Committee on Publication be referred to the President and Secretary. Carried.

Adjourned.

June 3, 1903, Evening

The President announced the appointment of J. C. M. Floyd, of Jefferson County, John S. Beck, of Montgomery County, and Hugh F. Lorimer, of Greene County, as a Special Committee on Amendments to the Constitution and By-Laws, and the Committee was ordered to report on Thursday.

The Council reported that the following Counties were in shape to receive their charters: Union, Licking, Hancock and Jefferson. Approved.

The report of the Business Committee was received. The members of the Business Committee are: A. P. Ohlmacher, Gallia County; Brooks F. Beebe, Hamilton County; and George W. Moorehouse, Cuyahoga County.

The report of the Secretary was called for, and postponed.

The report of the Treasurer was read and received, as follows:

1902 Receipts:—

Balance on hand	$ 237.41	
Initiations and dues	1,448.00	
Total		$1,685.41

Disbursements:—

P. Maxwell Foshay, Secretary and Editor:		
Salary Secretary 1901	$ 125.00	
Salary Editor	100.00	
Salary Stenographer	50.00	
Expense	95.84	
Total		$ 370.84
James A. Duncan, Treasurer:		
Salary, 1901	$ 125.00	
Postage	69.60	
Printing	7.75	
Telegram	.52	
Surety Bond	7.50	
Total		$ 210.37
Thos. Charles Martin, Legislative Com.		91.50
H. E. Smead, Assistant Secretary		10.00
E. E. Akers, Assistant		25.00
S. E. Cone, Stenographer		50.00
J. B. Savage, Publisher:		
Printing	$ 148.75	
Transactions, 1902	570.50	
Total		$ 719.25
B. F. Wade, P. Day and Index Ledger		$ 16.60
U. S. Mailing and Addressing Company		2.75
Central Passenger Association		11.00
Postmaster, Toledo, Mailing 1902 Transactions		80.00
American Express Company		11.61
Dues Returned		43.00
Freight and Drayage		3.00
Worthless Check		2.00
Balance Account		38.49
Total		$1,685.41

The report of the following Councilors were received: Brooks F. Beebe, Hamilton County; Horace Bonner, Montgomery County; Frank D. Bain, Hardin County; Julius H

Jacobson, Lucas County; Thomas Charles Martin, Cuyahoga County; J. C. M. Floyd, Jefferson County; John E. Sylvester, Jackson County.

Dudley P. Allen, of Cuyahoga County, moved a vote of thanks to the Council. Carried.

George W. Moorehouse, Cuyahoga County, moved that the Secretary and Council take up the matter of Charters for the County Societies, and bring in recommendations tomorrow. Carried.

Dudley P. Allen, of Cuyahoga County, moved that the Committee on Amendments to the Constitution and By-Laws interpret Article X of the Constitution.

Brooks F. Beebe, of Hamilton County, moved that the President and Secretary, in connection with the Councilors, constitute a committee to secure articles of incorporation for the Ohio State Medical Association not for profit. The motion was carried.

The President reported the appointment of the Secretary, A. P. Ohlmacher, of Gallia County, and C. F. Clark, of Franklin County, to be members of the Publication Committee.

John A. Thompson, of Hamilton County, moved that the Secretary be authorized to employ a stenographer for the meeting.

C. F. Clark, of Franklin County, introduced amendments to Chapter V, Section 3, of the By-Laws, and Article VIII, Section 3, of the Constitution, changing the last meeting of the House of Delegates at each annual session from Friday to Thursday.

Thomas Charles Martin, of Cuyahoga County, moved that the By-Laws be so amended. It was referred to the Committee on Amendments.

Adjourned.

June 4, 1903, 1 P. M.

Roll Call.

The Business Committee presented its report which was adopted.

The report of the Publication Committee was received from A. P. Ohlmacher, of Gallia County. It was discussed by John A. Thompson, C. F. Clark, J. C. Larimore, P. M. Foshay, P. S. Conner, Rufus B. Hall, J. W. Costolo, and W. C. Chapman.

Dudley P. Allen, of Cuyahoga County, moved that the report be laid on the table for one year. This was discussed by T. Clarke Miller, and Thomas C. Martin.

Thomas Charles Martin, of Cuyahoga County, moved to amend Dr Allen's motion by striking out the words "one year." Dr Allen raised point of order. Dr Allen's motion was adopted.

P. S. Conner, of Hamilton County, moved that the Committee be instructed to bring out the Transactions in a volume as usual, and levy an assessment, if necessary. Carried.

The Council reported that the following 57 Counties were entitled to charters: Adams, Allen, Ashtabula, Athens, Belmont, Brown, Butler, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Defiance, Delaware, Erie, Fayette, Franklin, Gallia, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Jackson, Knox, Lawrence, Licking, Logan, Lorain, Lucas, Mahoning, Marion, Meigs, Mercer, Miami, Montgomery, Morrow, Muskingum, Perry, Pike, Preble, Richland, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Tuscarawas, Union, Warren, Washington, and Wood. On motion of E. Cameron, of Lorain County, they were granted. And further, the Council recommended that the Secretary of this Association be authorized on the order of a Councilor of a given district to issue charters to the County Societies of his district on presentation of that County's application, and evidence of the

applicant's having complied with the Association's requirements.

J. C. M. Floyd, of Jefferson County, and Chairman of the Committee on Constitution, reported recommendations on the following proposed amendments: (1) Strike out Sections 10 and 11, Chapter XII. Not recommended. Lost. (2) Chapter VIII, Section 3, strike out last sentence. Not recommended. Lost. (3) Section 4, Chapter XII, strike out all after the first sentence. Not recommended. Lost. (4) Chapter XII, Section 5, strike out everything after the word "member." Not recommended. This proposed amendment was discussed by Dudley P. Allen, Horace Bonner, C. F. Clark, T. C. Miller, and John E. Sylvester. D. P. Allen read from the By-Laws and moved to amend by striking out the last line on page 13. This interjected motion was discussed by P. S. Conner, J. W. Costolo, W. F.Marting, T. C. Martin, H. F. Lorimer, the President, and C. F. Clark. Dr Allen's motion was lost. (5) The Committee recommended that the word "entitled" be changed to "eligible," top of page 14. Carried unanimously. (6) Amendment to strike out Section 12, of Chapter XII. Not recommended. Lost. D. P. Allen moved an amendment to Section 5, of Chapter III, of the By-Laws. This amendment permits authors to print their papers in medical journals of their own selection as well as in the Transactions. It was moved that this amendment be referred to the Publication Committee, to report in one year. Brooks F. Beebe, in the Chair, and was discussed by the Secretary, John E. Sylvester, D. P. Allen, J. W. Costolo, R. B. Hall, and W. F. Marting.

Thomas Charles Martin, of Cuyahoga County, made a motion to lay on the table all motions and amendments. Carried.

J. S. Rardin spoke.

P. S. Conner, of Hamilton County, moved that the report of the Committee be laid on the table for an indefinite period. This motion was laid on the table.

A motion was made to strike out the last sentence of Section 7, on page 6. Carried.

Thomas Charles Martin, of Cuyahoga County, moved that a provision for vacancies in the Council be filled by the Council.

It was moved that an amendment be made to strike out the words "letter or" from Section 3, of Chapter XII, of the By-Laws. The motion was discussed by Horace Bonner and Dudley P. Allen. Carried.

It was moved to adopt the report of the Committee on Amendments as amended. It was discussed by W. F. Marting, and John E. Sylvester. Carried.

Adjourned.

June 5, 1903, 10 A. M.

On the iniative of the President, D. L. Moore, of Franklin County, and George W. Moorehouse, of Cuyahoga County, were ratified on the Committee on Nominations.

The report of the Committee on Nominations is as follows: President, F. W. Langdon, Cincinnati; Benjamin R. McClellan, Xenia; S. S. Thorn, Toledo. Vicepresidents: W. W. Pennell, Fredericktown; Thomas L. Wright, Troy; Horatio Chisholm, Marion. Delegates to the American Medical Association: P. M. Foshay, Cleveland; Charles A. L. Reed, Cincinnati; John S. Beck, Dayton. Alternate Delegates to the American Medical Association: J. F. Marchand, Canton; William J. Gillette, Toledo; and J. F. Baldwin, Columbus.

The Secretary was ordered to cast a ballot for all Councilors. They are as follows: Brooks F. Beebe, Cincinnati, one year; Harry H. Jacobs, Akron, one year; Horace Bonner, Dayton, two years; J. C. M. Floyd, Steubenville, two years; Frank D. Bain, Kenton, three years; E. C. Brush, Zanesville, three years; Julius H. Jacobson, Toledo, four years; John E. Sylvester, Wellston, four years; Thomas

Charles Martin, Cleveland, five years; T. W. Rankin, Columbus, five years.

A motion was made that the appointment of Delegates to the American Medical Association be postponed for one year, as the next meeting of the American Medical Association is called for a time later than that for the Association.

Thomas Charles Martin, of Cuyahoga County, moved that the appointment of these Delegates be made at this meeting as in the event that the American Medical Association call a special meeting, the Association would have no delegates. Carried. John S. Beck, of Dayton; Charles A. L. Reed, of Cincinnati, and the Secretary were elected the delegates.

The President announced that supplementary nominations for President might now be made.

A. P. Ohlmacher, of Gallia County, nominated Charles S. Hamilton, of Columbus, an additional candidate for President. The tellers of the ballot were W. F. Marting and A. Melville Crane.

A motion was made to drop the lowest man after the second ballot. Carried.

On the second ballot Charles S. Hamilton, of Columbus, was elected President. B. H. Blair moved to make the election unanimous. Seconded. Carried.

It was moved that B. R. McClellan be nominated to third Vicepresident in place of R. T. Trimble. This was declared ineligible.

The Secretary was ordered to cast the ballot for B. R. McClellan for Vicepresident.

It was moved and seconded that a Committee on State Pathologic Institute be appointed.

C. F. Clark, of Franklin County, moved that there be five members on the Committee. Carried. The President appointed on this Committee E. J. Wilson, Columbus, Chairman; A. P. Ohlmacher, Gallipolis; A. B. Howard, Cleve-

land; Julius H. Jacobson, Toledo; F. W. Langdon, Cincinnati.

The report of the Business Committee was adopted.

Report of the Committee on Public Policy and Legislation:

(1) Reciprocity for Medical Licensures.

(2) State Hospital for Crippled Children.

(3) Expert Witness Fees.

Whereas: The necessity is appreciated of securing an amendment to the present medical law;

Be it Resolved: That the Committee on Public Policy and Legislation make an effort to secure such amendment to the present law governing medical practice as will facilitate the establishment of a just exchange in license to practice between States.

Whereas: The State Conference of Charities and Corrections have appealed to the Legislature to make provision for the care, education and treatment of crippled and deformed children, and realizing the great need of a State Institution of this character;

Therefore, Be it Resolved: That the Ohio State Medical Association as a body cordially indorse the action of the Conference of Charities and Corrections, and earnestly prays the Legislature that action be speedily taken to carry into effect this great and humane purpose.

Resolved: That the Secretary be instructed to communicate their action officially to the Legislature when the next meeting is in session.

Resolved: That the Councilors be instructed to secure the support, if possible, of members of the Legislative Committee from their district for the needed legislation.

On motion these resolutions were adopted.

The Committee on Legislation recommended the adoption of the following resolutions:

Whereas, the Legislature of the State of Ohio has be-

fore it for consideration a proposition for the establishment of an institution for the care of crippled children:

Be it resolved: that the Committee on Public Policy and Legislature be authorized carefully to consider the project, and to urge its passage in case the proposition is found to be one worthy the support of this Association. Carried.

A. Melville Crane, of Marion County, moved that the resolutions on expert witness fees be referred to the Committee on Legislation.

George Goodhue, of Montgomery County, moved a vote of thanks to the National Cash Register Company for the use of their hall for the banquet. Carried.

Place of Meeting

G. B. Evans, of Montgomery County, suggested Columbus; Julius H. Jacobson, of Lucas County, suggested Cleveland. Thomas Charles Martin, of Cuyahoga County, invites the Association to Cleveland. Cleveland selected.

C. F. Clark, of Franklin County, presented the following resolutions on a Bulletin, which was referred to the Publication Committee:

Resolved: That the Committee on Publication be instructed, if the funds are found sufficient, to print a number of small bulletins which shall be sent to the Secretary of each County Medical Society in sufficient numbers that one may be delivered to each member.

That this bulletin shall contain the general news of the Association; an index of the papers presented at the previous meeting, and the names of the journals in which they may be found, and in addition the names of the delegates as they are chosen by the component societies, and any other items which may be of interest to the members.

J. C. M. Floyd, of Jefferson County, proposed an amendment to Section 3, Chapter V, of the By-Laws, that

the day of election be changed. It would then read as follows:

"Section 3. The report of the Nominating Committee and the election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the second day of the Annual Session." Under the rules this goes over to the meeting of 1904.

W. F. Marting, of Lawrence County, presented the following resolutions in regard to alcoholic liquors at the annual banquets:

"Whereas: The medical profession is a profession representing good health, good morals, and recognizing the evil effects of alcoholic liquor on the health and morals:

Be it resolved: That we, the House of Delegates, of the Ohio State Medical Association, recommend the abolishing of this custom of serving alcoholic liquors at the banquet of the Association.

Be it further resolved: That the resolution be printed in the Transactions of the Association, and be transmitted each year to the Committee on Arrangements of the city where annual meeting is to be held."

This resolution was laid on the table.

Thomas C. Martin, of Cuyahoga County, moved to continue the Committee on Constitution and By-Laws until next year. Carried.

John A. Thompson, of Hamilton County, moved that the expenses of the Councilors be paid. Carried.

John A. Thompson further moved that all other bills be referred to the Council, Secretary and Treasurer for examination and payment.

John A. Thompson moved that the Council provide for the payment of the Secretary, Treasurer and Editor. Carried.

Adjourned.

Minutes of the General Meeting

The general meeting of the Ohio State Medical Association was called to order at 1:30 o'clock by the President, William C. Chapman, at the Parish House of the Christ Episcopal Church, Dayton, on June 3, 1903. The invocation was delivered by Rev. Holmes Whitmore.

John C. Reeve, Jr., of Dayton, made the address of welcome, and a short response was made by the President.

The report of the Committee on Arrangements was read and accepted.

A paper, "Sepsis from the Medical Standpoint," was read by George E. Malsbary, of Cincinnati. The paper was discussed by J. H. J. Upham and George E. Malsbary.

A paper, "Wound Infection and Its Treatment, with Report of Cases," was read by Sherman Leach, of Columbus. It was discussed by George E. Malsbary, F. B. Entrikin, J. A. Kimmell, W. D. Stewart, J. F. Baldwin, B. Merrill Ricketts, J. W. Costolo, Thad. A. Reamy, F. F. Lawrence and Sherman Leach.

A paper, "Ureterointestinal Anastomosis," was read by Julius H. Jacobson, of Toledo.

A paper, "On the Value of Catheterization and Urine Separation with Hemo- and Urinocryoscopy in Surgical Diseases of the Kidneys," was read by Wm. E. Lower, of Cleveland.

A paper, "Prostatectomy With Rectum as a Urinary Receptacle—Two Cases—Exhibition of Patient," was read by B. Merrill Ricketts, of Cincinnati.

The foregoing papers were discussed together by D. P. Allen, John Perrier, Julius H. Jacobson and William E. Lower.

A paper, "The Importance of a Right Diagnosis in Gastric Disorders," was read by C. L. Mueller, of Wapakoneta.

A paper, "A Simple Measure for the Control of Anal Hemorrhage," was read by Thomas Charles Martin, of Cleveland.

A paper, "The Effect of Mastoid Operation Upon Recent Middle-Ear Suppuration," was read by J. E. Brown, of Columbus. It was discussed by John A. Thompson, F. G. Steuber, George E. Malsbary, Dudley P. Allen and J. E. Brown.

Thursday Morning, June 4, 1903

A paper, "The Control of Prostitution and the Prevention of the Spread of Veneral Disease," was read by M. L. Heidingsfeld, of Cincinnati. It was discussed by T. A. Reamy, Frank Warner, John A. Thompson and M. L. Heidingsfeld.

A paper, "One Thousand Abdominal Closures Without a Single Known Hernia," was read by J. F. Baldwin, of Columbus. It was discussed by R. B. Hall, F. F. Lawrence, Merrill Rickets and J. F. Baldwin.

A paper, "Absence of Gastric Juice—Significance and Treatment," was read by Henry Wald Bettman, of Cincinnati. It was discussed by John Dudley Dunham, G. E. Malsbary, Frank Warner and John P. Sawyer.

A paper, "Malpractice Laws of Ohio," was read by William J. Gillette, of Toledo. It was discussed by J. F. Baldwin, Frank Warner, J. A. Kimmell, James Fraunfelter and William J. Gillette.

A paper, "Rheumatism in Childhood," was read by Alfred Friedlander, of Cincinnati. It was discussed by George E. Malsbary, G. A. Hermann, W. D. Stewart, E. W. Mitchell and Alfred Friedlander.

A paper, "A Case of Diaphragmatic Hernia—Death From Acute Distension," was read by T. L. Chadbourne, of Gallipolis.

A paper, "My Experience With Large Doses of Creosote in Tuberculosis—A Report of Cases," was read by E. S. Ray, of Hamden Junction. It was discussed by Frank Warner, T. E. Keelor, John P. Sawyer, C. S. Chamberlin and E. S. Ray.

A paper, "An Interesting Case of Calcification of Mul-

tiple Myoma," was read by William H. Humiston, of Cleveland.

A paper, "Local Treatment in Common Diseases of the Lungs," was read by John A. Thompson, of Cincinnati. It was discussed by John P. Sawyer, W. H. Merriam, T. A. Reamy, William W. Glenn and John A. Thompson.

Thursday Afternoon, June 4

The meeting was called to order at 3 o'clock.

The President, William C. Chapman, of Toledo, delivered an address.

An address was delivered by John B. Deaver, of Philadelphia.

A paper, "The Laboratory Movement in Ohio's State Hospitals," was read by A. P. Ohlmacher, of Gallipolis.

A paper, "Organization in Ohio," was read by Brooks F. Beebe, of Cincinnati.

A paper, "The Conservative Treatment of Knee-Joint Infections," was read by J. H. Whitacre, of Cincinnati.

Friday Morning, June 5

A paper, "Simple Cyst of the Kidney—Diagnosis and Treatment, with Report of Two Cases," was read by J. F. Fox, of Toledo.

A paper, "What Can we Do to Relieve Deafness Due to Chronic Inflammation of the Middle Ear," was read by C. P. Linhart, of Columbus. It was discussed by J. H. McCassey, F. B. Entrikin, John M. Ingersoll and C. P. Linhart.

A paper, "The Status of Psychological Medicine," was read by Charles S. McDougall, of Athens. It was discussed by J. H. McCassey, R. H. Grube and Charles S. McDougall.

A paper, "The Snellen Wet Dressing in the After-Treatment of Cataract," was read by C. F. Clark, of Columbus. It was discussed by Harris G. Sherman.

CHAPTER VIII—MEMBERS AND DELEGATES

Physicians Registered at the Dayton Meeting of the Ohio State Medical Association, June 3, 4, 5, 1903

Academy of Medicine of Cincinnati:

Beebe, Brooks R.,
Bettman, Henry Wald
Bonifield, C. L.
Carpenter, Julia W.
Chamberlin, C. S., Norwood.
Cone, Stephen E.
*Conner, P. S.
Culbertson, J. C.
Freiberg, Albert A.
Friedlander, Alfred
Green, Myron D.
Haines, W. D.
Hall, Joseph A.
*Hall, Rufus B.
Heidingsfeld, M. L.
Johnstone, A. W.
Kramer, S. P.
Langdon, F. W.
Lamb, Frank H.
Malsbary, George E.
McKee, E. S.
Mitchell, E. W.
Ransohoff, Joseph
Reamy, Thad. A.
Reed, C. A. L.
Ricketts, B. Merrill
Schwab, Louis
Strickler, Louis
Swartsel, S. C.
Tangeman, C. W.
*Thompson, J. A.
Whitacre, Horace J.

*Delegate.

Academy of Medicine of Cleveland:

Aldrich, Charles J.
*Allen, Dudley P.
Foshay, P. Maxwell
Hanson, D. S.
House, Augustus F.
Humiston, William H.
Ingersoll, John M.
Kelley, S. W.
Martin, Thomas Charles
Merriam, Walter H.
*Moorehouse, G. W.
Lower, William E.
Sawyer, John P.
*Skeel, R. E.

Adams County:

Crawford, T. C., Dunkinsville.
Guthrie, J. W., Manchester.
Loney, W. B., West Union.
Robe, O. W., Peebles.
*Sproull, O. T., West Union.
Thomas, G. F., Peebles.
Wickerham, J. O., Seaman.
Wittenmyer, J. M., Peebles.

Allen County:

Bates, Fred L., Lima.
Brundage, N. E., Delphos.
Burton, E. G., Lima.
Davison, Monroe, West Newton.
Hover, W. E., Lima.
Huntley, J. H., Lima.
Mumaugh, Shelby, Lima.

Allen County—Continued.

*Rudy, A. S., Lima.
Steiner, D. W., Lima.
Steuber, F. G., Lima.
Weadock, E. G., Lima.
Weger, George S., Delphos.

Athens County:

*Alderman, W. N., Athens.
McDougall, Charles S., Athens.

Auglaize County:

Fledderjohann, H. E., New Knoxville.

Belmont County:

Cope, E. C., Barton.

Brown County:

Evans, C. W., Russellville.
Gilfillen, A., Russellville.
Guthrie, H. S., Higginsport.
Kautz, J. W., Hamersville.
Love, Wesley, Higginsport.
*Stephenson, Y., Georgetown.
Wikoff, A. A., Decatur.

Butler County:

Hermann, G. A., Hamilton.
Millikin, Dan, Hamilton.

Clarke County:

Anzinger, F. P., Springfield.
Bell, Read L., Springfield.
Bliss, Theodore F., Springfield.
Bright, W. E., North Hampton.
Dugan, John P., Springfield.
Gotwald, D. K., Springfield.
Hiestand, Clinton M., Springfield.
Hutchings, Stanley R., Springfield.
Kay, Isaac, Springfield.
Link, J. A., Springfield.
Minor, C. L., Springfield.
Moore, John J., South Charleston.

Clarke County—Continued.

*Myers, John Ezra, Springfield.
Patton, W. B., Springfield.
Ramsey, C. S., Springfield.
Rind, Robert C., Springfield.
Rodgers, John H., Springfield.
Seward, I. E., Springfield.
Syman, S. S., Springfield.
Thomas, J. D., Catawba.
Titlow, Bennetta D., Springfield.
Vance, Allen H., Springfield.

Champaign County:

Hamsher, J. F., St. Paris.
Henderson, R. T., Urbana.
*Houser, D. C., Millerstown.
Ludlow, E. W., Urbana.
Pearce, H. M., Urbana.
Smith, M. L., Urbana.

Clinton County:

Briggs, Eldorado, Wilmington.
Craig, T. E., Sabina.
Lightner, S. B., Sabina.
Quinn, A. T., Wilmington.
*Trimble, R. T., New Vienna.
Wire, G. W., Wilmington.

Columbus Academy of Medicine:

Allaman, William E.
Baldwin, J. F.
Barnhill, James U.
Blake, Francis W.
Brown, J. E.
*Clark, C. F.
Cole, W. U.
Coleman, N. R.
Combs, Rebecca V.
Cooperrider, C. A.
Deuschle, Wm. D.
Dunham, John Dudley
Frame, John A.
Gordan, John L.

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Columbus Academy of Medicine—Continued.

Hamilton, Charles S.
Hendrixson, Hugh
Henry, R. H.
Johnson, F. T.
Jones, Harry S.
Kinsman, D. N.
Lawrence, F. F.
Leach, Sherman
Linhart, C. P.
McGavran, Charles W.
Means, C. S.
*Moore, Dickson L.
Nessley, G. B., Grove City.
Norris, F. B., Alton.
Ranchous, Walter E.
Rankins, T. W.
Rodenbaugh, H. A.
Tarbell, Robert C.
Taylor, Sterling B.
Teachnor, Wells
Upham, J. H. J.
Warner, Frank
Wilson, E. J.
Winders, Frank
Woodruff, Lafayette
Wright, John W.

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*Carr, E. C., Coshocton.

Crawford County:

*Duncan, A. M., Bucyrus.
Trimble, Charles E., Crestline.

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Baker, Charles, Palestine.
Ballinger, John B., Bradford.
Fisher, E. A., Yorkshire.
Fitzgerald, W. T., Greenville.
Gorbold, A. A., Palestine.

Darke County—Continued.

Hecker, E. A., New Madison.
Husted, E. G., Beamsville.
Lemon, W. L., Greenville.
*Rush, A. W., Greenville.
Sewell, S. G., Greenville.
Snorf, H. A., Ansonia.
Stephen, C. I., Ansonia.
Wolverton, O. P.

Erie County:

*Cook, Alta F., Sandusky.
Graefe, Charles, Sandusky.
Hanson, James S., Sandusky.

Fairfield County:

Goss, C. W., Lancaster.

Fayette County:

Holdren, G. W., Bloomingburg.
*Hughey, J. W., Washington C. H.
Ireland, W. E., Washington C. H.
Scurlock, W. S., New Holland.
Teeters, C. A., Jeffersonville.

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O'Dell, Samuel, Swanton.

Gallia County:

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Lupton, Ella G., Gallipolis.
*Ohlmacher, A. P., Gallipolis.

Green County:

Dice, S. D., Xenia.
Galloway, W. A., Xenia.
Grube, R. H., Grape Grove.
Hendrixson, O. P., Yellow Springs.
Kent, F. M., Spring Valley.
*Lorimer, Hugh F., Jamestown.
Marquart, O. M., Osborn.
Marsh, Miron I., Cedarville.
McClellan, Benj. R., Xenia.
McClellan, H. R., Xenia.
Messenger, A. C., Xenia.

*Delegate.

Green County—Continued.
Murrell, Grant, New Burlington.
Ogan, F. W., Jamestown.
Pherson, A. M., Osborn.
Rouse, William L., Paintersville.
Schrock, E. B., Yellow Springs.
Smith, R. W., Spring Valley.
Spahr, David E., Clifton.

Guernsey County:
*Bradford, William N., Cambridge.

Hancock County:
Entrikin, F. B., Findlay.
*Kimmell, Jacob A., Findlay.

Hardin County:
Bain, Frank D., Kenton.
Protzman, E. S., Kenton.

Hempstead Memorial Academy:
Allard, Lorenzo D., Portsmouth.
Foster, E. M., Manchester.
Kline, P. J., Portsmouth.
Maerker, A. E. H., Napoleon.
*Rardin, Joseph S., Portsmouth.
Williamson, Joseph C., Sciotoville.

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Gibson, James T., Lynchburg.

Hocking County:
*Dillinger, T. J., Murray.

Holmes County:
Whitmar, J. E., Millersburg.

Jackson County:
*McClung, J. J., Jackson.
Ray, A. G., Byer.
Sylvester, John E., Wellston.

Jefferson County:
Floyd, J. C. M., Steubenville.
*Wood, W. H., Smithfield.

*Delegate.

Knox County:
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Eastman, W. H., Fredericktown.
*Larimore, Frank C., Mt. Vernon.
Lee, James F., Mt. Vernon.
Pennell, William W., Fredericktown.

Lawrence County:
*Marting, William F., Ironton.

Licking County:
*King, Charles P., Newark.

Logan County:
Leonard, B. B., West Liberty.
Richeson, Carrie, Bellefontaine.

Lorain County:
*Cameron, E., Lorain.

Marion County:
Chisholm, Horatio, Marion.
*Crane, A. M., Marion.
Hamilton, L. D., Marion.
King, John I., Martel.
Weeks, Dana O., Marion.
Rhu, Hermann S., Marion.

Mercer County:
Bolman, C. F., Coldwater.
Downing, M. L., Rockford.
*Sager, Joseph, Celina.
Symons, J. P., Rockford.
Weamer, P. F., Coldwater.

Miami County:
Burnham, R. D., Piqua.
Caywood, J. Robert, Piqua.
Coleman, Warren, Troy.
Frame, A. B., Piqua.
Gregg, E. H., Brandt.
Grosvenor, A. W., Piqua.
Hartman, S. D., Tippecanoe City.

Miami County—Continued.

Havens, H. H., Tippecanoe City.
Hoover, L. S., Laura.
Jennings, Gainor, West Milton.
Lowe, J. H., Piqua.
McCullough, G. E., Troy.
Miller, A. C., Covington.
Murray, J. E., Piqua.
O'Ferrall, R. M., Piqua.
Pearson, H. R., West Milton.
Prince, Will J., Piqua.
Senour, J. G., Troy.
*Thompson, W. R., Troy.
Unkefer, W. N., Piqua.
Wright, Thomas M., Troy.

Morrow County:

Morehouse, G. W., Sparta.

Montgomery County:

Bailey, V. M., Dayton.
Barker, Fred D., Dayton.
Barrere, D. M., Dayton.
Beck, John S., Dayton.
Bohlender, Edmond E., Dayton.
Bonner, Horace, Dayton.
Boone, Alonzo, Englewood.
Breidenbach, C. H., Dayton.
Brown, G. T., Center.
Bunn, R. A., Dayton.
Burns, William A., Dayton.
Carter, John L., W. Carrollton.
Conklin, Daniel B., Dayton.
Conklin, W. J., Dayton.
Coy, M. E., Dayton.
Crum, E. C., Dayton.
Cummings, J. V., Farmersville.
Dale, George P., Dayton.
Davisson, E. C., Dayton.
Davisson, J. A., Dayton.
Delscamp, W. H., Dayton.
Dillon, T. A., Dayton.
Dolina, J. F., Dayton.

Montgomery County—Continued.

Duckwall, F. A., Dayton.
Dupuy, T. V., Dayton.
Earnshaw, Louis P., Dayton.
*Evans, George B., Dayton.
Everhard, E. S., Dayton.
Ewing, William A., Dayton.
Farber, James H., Dayton.
Felker, Gertrude, Dayton.
Gaugler, Richard S., Dayton.
Gilbert, Thompson D., Dayton.
Gohn, George D., Dayton.
Good, Harman, Dayton.
*Goodhue, George, Dayton.
Gray, F. C., Dayton.
Greene, D. W., Dayton.
Greiss, O. C., Dayton.
Gunckel, P. L., Dayton.
Hale, Paul D., Dayton.
Haning, H. C., Dayton.
Hatcher, Harry S., Dayton.
Hendren, S. E., Dayton.
Henkel, George C., Farmersville.
Henry, F. R., Dayton.
Hill, Edward L., Dayton.
Hochwalt, G. A., Dayton.
Hous, George W., Dayton.
Howell, J. Morton, Dayton.
Humphreys, C. H., Dayton.
Huston, E. M., Dayton.
Jenner, A. E., Dayton.
Jewett, H. S., Dayton.
Judy, C. S., Miamisburg.
Keever, D., Centerville.
Kimmell, H. S., Dayton.
King, C. W., Dayton.
Kline, Walter L., Dayton.
Krauss, L. S., Middletown.
Lichliter, D. C., Dayton.
Light, A. L., Dayton.
Malleu, E. H., Dayton.
Marshall, T. E., Dayton.

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Montgomery County—Continued.

Marshall, W. C., Dayton.
McCassev, J. H., Dayton.
McCray, Orville, Miamisburg.
McLean, C. C., Dayton.
Miller, D. E., Dayton.
Miller, Verlando Z., Brookville.
Mills, Daniel C., New Lebanon.
Myers, G. C., Dayton.
Patterson, C. L., Dayton.
Pennywill, Rufus C., Dayton.
Porter, Matthew, Dayton.
Powell, Charles F., Dayton.
Prather, W. F., Dayton.
Ratliff, J. M., Dayton.
Reeve, J. C., Jr., Dayton.
Reilly, D. G., Dayton.
Ryan, M., Dayton.
Salisbury, C. W., Dayton.
Salisbury, J. A., Dayton.
Schuster, G. R., Dayton.
Shepherd, A. F., Dayton.
Slagle, C. D., Centerville.
Smith, W. S., Dayton.
Souders, Samuel, Beavertown.
Spitler, E. W., Center.
Stewart, E. A., Dayton.
Tachauer, Albert, Dayton.
Taylor, Wilfred, Dayton.
Thompson, Frank S., Dayton.
Weaver, F. C., Dayton.
Weaver, J. M., Dayton.
Wendenhall, W. C., Trotwood.
Werthner, Joseph, Dayton.

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Geyer, H. R., Zanesville.
Higgins, Charles H., Sonora.
*Sutton, H. T., Zanesville.

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*McTeague, N. S., New Lexington.

Pike County:

Willson, C. H., Idaho.

Preble County:

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Christian, W. I., Verona.
Drayer, S. P., W. Alexandria.
Hawley, C. A., New Paris
*McQueen, D. W., Camden.
Michael, Eaton
Patterson, C. E., Morning Sun.
Water, P. M., Gratis.
Sayler, W. S., Gratis.
Singer, A. E., Lewisburg.

Putnam County:

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Hickey, Wiley D., Leipsic.

Richland County:

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Maglott, John, Mansfield.
McBride, J. Lillian, Mansfield.
*McCullough, A. H., Mansfield.
Yoder, J. A., Lucas.

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Gibbon, H. B., Tiffin.
Porter, E. H., Tiffin.
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Shelby County:

*Costolo, J. W., Sidney.
Hussey, M. F., Sidney.

Stark County:

Culbertson, N. W., Massillon.
DeWitt, John P., Canton.
Fraunfelter, James, Canton.
*Miller, T. Clarke, Massillon.
Walker, A. B., Canton.
Zinninger, George T., Canton.

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Summit County:

Jacobs, Harold H., Akron.
Mather, E. L., Akron.

Toledo and Lucas County Academy of Medicine:

*Bamberger, Herman, Toledo.
Brand, Walter W., Toledo.
Chapman, W. C., Toledo.
DeVilbiss, Allen, Toledo.
Duncan, James A., Toledo.
Fox, Joseph F., Toledo.
Gillette, William J., Toledo.
Jacobson, Julius H., Toledo.
*Keller, John G., Toledo.
Stewart, William D., Toledo.
Thorn, S. S., Toledo.

Tuscarawas County:

Dunn, E. S., Pt. Washington.
*Groves, J. E., Uhrichsville.

Union County:

Jenkins, D. J., Broadway.
*Mills, Charles D., Marysville.
Thompson, Charles A., Raymond.

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Clay, W. P., Convoy.
Hines, J. A., Van Wert.

Vinton County:

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Warren County:

*Blair, B. H., Lebanon.
Death, H. J., Franklin.
Hough, Charles A., Lebanon.
Keelor, T. E., Lebanon.
Sherwood, Thos. S., Waynesville.
Stevens, Edward S., Lebanon.
Ward, J. W., Lytle.
Williams, D. A., Franklin.

Wood County:

Holst, E. B., Rossford.
Johnston, Henry J., Haskins.

Wyandot County:

Sampson, George W., Upper Sandusky.

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*Delegate.

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J. L. Cleveland.....First Vicepresident.
B. F. Goode.....Second Vicepresident.
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Magnus A. Tate.....Treasurer.

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Agin, Charles C., 1135 Dayton st.
Albers, Henry W., 25 E. 12th st.
Allen, George M., 2404 Auburn st.
Allen, Samuel E., 22 W. 7th st.
Allgaier, S. A., 1542 Linn st.
Arnold, George B., Madisonville.
Ashfield, Charles S., 120 Calhoun st.
Ayres, Stephen E., 4 W. 7th st.
Ayres, Wylie Mc., 4 W. 7th st.
Bacharach, Fred, 710 E. McMillen st.
Bailey, Gilbert L., 14 E. 7th st.
Bange, Theodore, 1603 Westwood ave.
Batchelor, Emma J., 12 Calhoun st.
Bauer, Arthur C., 1543 John st.
Beebe, Brooks F., 408 Broadway.
Bell, Albert J., Ridgeway & Reading.
Bell, William H., 3754 Clifton st.
Belt, Richard C., Milford.
Bettman Henry, 43 Groton Bldg.
Birchard, Almon D., 1201 Harrison st.
Bonifield, Charles, 422 W. 4th st.
Brady, Mifflin B., 3725 Terrace Place.
Bramble, David D., 511 Broadway.
Brown, Joseph E., 13th and Race st.
Brown, Mark, 628 Elm st.
Bruce, Clara A., 656 Neave Bldg.
Brunning, Frank, 411 Broadway.
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Buckner, James H., 333 E. 4th st.
Buschman, Henry, 1209 Elm st.
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Buttemiller, George S., 2530 Auburn.
Buttemiller, John C., 2530 Auburn st.
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Caldwell, Frank, Fourth and Broadway.
Caldwell, James S., 410 W. 8th st.
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Campbell, W. H., 330 E. 4th st.
Carothers, Robert, 413 Broadway.
Carpenter, Julia W., 908 E. McMillen.
Carroll, Travis, 114 E. 8th st.
Carson, Archibald I., 46 E. McMillen.
Casello, John B., 627 W. 8th st.
Christian, Theodore, 22 W. 7th st.
Cleveland, John L., 838 W. 7th st.
Cole, Alfred P., Cincinnati.
Colter, LeRoy S., 3410 Clifton st.
Cone, Stephen E., 719½ Central Ave.
Cook, Harbey, Oxford.
Cook, Louis E., 3532 Warsaw.

Cragg, H. C., 9 Garfield pl.
Crane, William H., 20 W. 9th st.
Cross, Frank B., 628 Elm st.
Culbertson, James C., 317 W. 7th st.
Cullen, Charles W., Eighth and Freeman.
Dandridge, Pendleton N., 422 Broadway.
Danziger, Leo, 24 W. 9th st.
Davis, Clark W., 902 Elm st.
Davis, Daniel J., 104 W. Liberty.
Davis, Francis W., 403 Broadway.
Davis, G. W., Lockland.
Davis, Jeptha, Third and Broadway.
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DeWitt, William H., 61 Auburndale pl.
Denman, Marshall L., 135 W. 9th st.
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Dickey, Eliza J., Children's Hospital.
Diekmeier, Henry P., 10 W. 7th st.
Dixon, Giles M., 10 W. 7th st.
Dodd, Charles W., 907 Neave Bldg.
Domhoff, Louis, 108 Garfield pl.
Donnell, Clifton, 936 W. 8th st.
Dowling, Francis, 124 W. 9th st.
Drury, Alexander G., 625 W. 8th st.
Dunham, Remon H., McMillen st.
Dunham, William H., McMillen st.
Egar, George, 470 Bond st.
Eichberg, Joseph, 22 W. 7th st.
Eichberg, Julius, 55 Groton Bldg.
Erdhaus, F. J., 1017 W. 7th st.
Erwin, James E., 603 W. 8th st.
Evans, Charles S., 5 Garfield pl.
Everts, Orpheus, College Hill.
Fackler, George, 108 Garfield pl.
Faller, Albert, 1322 Chapel.
Falls, William H., 422 W. 7th st.
Fee, Frank E., 3815 Eastern ave.
Fels, George W., 434 Elm st.
Fennell, Otto W., 3018 Jefferson ave.
Fihe, Clement, 1205 Walnut st.
Fisher, Philip, 726 Laurel st.
Fitzpatrick, Thomas V., 32 Garfield pl.
Fletcher, Mordecai H., 11 E. 7th st.
Foertmeyer, Charles H., 836 W. 8th st.
Fogel, Leo J., 708 Clinton st.
Forchheimer, Frederick, Ortiz Bldg.
Forchheimer, Walter, Ortiz Bldg.
Ford, Starr, 504 W. 7th st.
Francis, Robin W. C., 534 W. 7th st.
Freiberg, Albert H., 708 Walnut st.
French, James M., 426 W. 8th st.
Freudenberger, Harry, 1418 Race st.
Friedlander, Alfred, 22 W. 7th st.
Fuls, Otto, 1636 Hoffner st.
Gaither, Alfred, 41 Groton Bldg.
Garlick, H. Stow, 32 Garfield pl.
Gates, Edward S., 4841 Eastern ave.
Gavin, William J., 908 Clark st.
Gau, H. F., Reading Road.
Geier, Otto P., 124 Garfield pl.
Gillespie, Paul, Wyoming.
Gillespie, William, 670 June st.
Gillette, Arthur E., 2456 Eastern ave.
Gleaser, Bertha L., Odd Fellows Bldg.
Goode, Burwell P., 1812 Baymiller st.
Goode, Peter W., 2145 Vine st.
Gores, Ferdinand C., 2928 Hackberry.
Green, Myron D., 3015 W. 6th st.
Greiwe, John E., 1344 Broadway.
Griess, Walter R., 14 E. 7th st.
Grimm, Adolph, 49 E. McMicken st.
Grothaus, John B., 1623 Baymiller st.
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Haines, W. D., 1606 Freeman st.
Hall, Joseph A., 2513 Auburn st.
Hall, Rufus B., 628 Elm st.
Hampton, Nellie B., 40 E. McMillan.
Hamma, Charles B., 1007 Dayton st.

Handley, D. C., 36 Garfield pl.
Harmon, F. W., Longview Asylum
Harris, James, 286 W. McMicken.
Harris, William C., 43 Groton Bldg.
Hart, Thomas P., 533 E. 5th st.
Hayes, Thomas W., 2206 Vine st.
Heady, T., Glendale.
Heidingsfeld, Meyer L., 22 W. 7th st.
Heise, Oscar N., 16 Garfield pl.
Held, Henry F., 1901 Vine st.
Hellman, Frank E., 1327 Broadway.
Hendley, Frank W., 785 E. McMillan.
Hely, Ashton B., Madison Rd. and Wold ave.
Hillkowitz, William, 704 Race st.
Hiller, Carl R., 708 Walnut st.
Hinckley, Herschel D., 213 W. 9th st.
Hines, H. H., 34 Garfield pl.
Holfing, Augustus T., 1201 Harrison.
Holmes, Christian R., 8 E. 8th st.
Holt, Oliver P., 134 W. 9th st.
Hooker, Elizabeth, 1032 Wesley ave.
Hoppe, Herman H., 32 Garfield pl.
Hottendorf, Louis P., 810 Richmond.
Hyndman, James G., 22 W. 9th st.
Iglauer, Samuel, 22 W. 7th st.
Ihle, Clarence, 22 W. 7 th st.
Iliff, Charles E., 5 Garfield pl.
Ingalls, Henry A., 628 Elm st.
Ingram, Robert, 510 Clark st.
Isham, Asa B., 849 Oak st.
Jacobs, E., 28 Findley st.
Jelke, William F., Clinton Springs ave.
Johnston, Ambrose, 412 Armory ave.
Johnston, Edward A., 412 Armory ave.
Johnstone, Arthur W., Madisonville ave.
Jones, Isaac D., 1014 E. McMillan st.
Jones, Robert C., 2373 Park ave.
Jones, William E., Jr., 911 E. McMillan st.
Joseph, Leopold L., 803 Race st.
Judkins, William, 122 Garfield pl.
Juler, E. Cundell, 12½ W. 7th st.
Junkerman, Gustave S., 231 W. Court
Kattenhorn, Henry F., 814 E. 3rd st.
Keck, Peter A., 1832 Race st.
Kehoe, E. J., Cincinnati.
Kendig, W. C., Longview Asylum.
Kiely, William E., 420 Broadway.
King, John R., 1268 E. 3rd st.
Knight, Arthur L., Madisonville.
Knight, William, 111 Garfield pl.
Koehler, Max, 124 W. 9th st.
Kramer, Simon P., 21 Garfield pl.
Kreiger, Gustave L., Madisonville.
Kriedler, Anthony C., 1108 Harrison ave.
Krouse, Louis J., 77 Groton Bldg.
Kugler, F. E., 748 Considine ave.
Kunz, John C., 511 Broadway.
Kyuon, Edwin, 1927 Central ave.
Lamb, Franklin H., Glendale.
Lamb, Frederick W., 4 W. 7th st.
Landis, John H., 815 Race st.
Landy, Edwin, 3016 Elam st.
Langdon, Frederick W., 5 Garfield pl.
Lehman, B. H., Home City.
Lewis, William E., 409 E. 5th st.
Mackenzie, John C., 20 W. 7th st.
MacMillan, Wade, Auburn and Saunders sts.
Macready, J. H., 608 Delhi st.
Maddox, Robert D., 1004 Yale st.
Maloney, J. J., 427 Clark ave.
Maloney, L. A., 731 W. 5th st.
Malsbary, George, 1604 Sycamore ave.
Marcus, Joseph, 411 W. 8th st.
Marcus, Jule, 411 W. 8th st.
McCarthy, Ellen F., 1032 Wesley ave.
McKee, Edward S., 10 W. 7th st.
McMechan, J. C., 639 W. 7th st.
Meitus, Joseph, 512 Armory st.

Miles, May S., McMillan and Milk aves.
Miller, I. C., 2544 Auburn ave.
Miller, James W., 29 E. 9th st.
Miller, John D., 432 W. 4th st.
Miller, R. W., 634 W. 6th st.
Mitchell, E. W., 3303 Reading pl.
Mitchell, Giles S., 10 W. 7th st.
Mithofer, William, 321 Broadway.
Morganstern, Adolph, 124 W. 9th st.
Moss, Edward E., 405 E. Liberty.
Muhlberg, William, 5 Garfield pl.
Murphy, A. D., 124 Garfield pl.
Murphy, John W., 4 W. 7th st.
Myers, C. H., 1556 Elm st.
Nelson, Lockhart, 22 W. 7th st.
Nickles, Samuel, 1406 John st.
Nippert, E., 1624 Chase ave.
Oliver, John C., 628 Elm st.
Orr, George B., 423 E. 4th st.
Palmer, C. D., 3539 Reading Rd.
Paul, Charles M., 32 Garfield pl.
Pearce, Charles T., 77 Groton Bldg
Phelps, Albert V., 510 W. 7th st.
Pierret, George A., Cincinnati.
Podesta, J. S., 2113 Vine st.
Poole, Allyn C., 2903 Woodburn ave.
Porter, William D., 2527 Gilbert ave.
Prugh, George W., 2101 Eastern ave.
Pucklitsch, Ernest O., 3142 Woodburn ave.
Rachford, Benjamin K., 323 Broadway.
Ramsey, Allen, Ortiz Bldg.
Ransohoff, Joseph, 706 Walnut st.
Ratterman, Bernard, 1532 Elm st.
Ratterman, F. L., 4 W. 7th st.
Ravogli, A., 5 Garfield pl.
Ray, Victor, Groton Bldg.
Reamy, Thad., 619 Oak st.
Reed, Charles A. L., 60 Groton Bldg.
Reemelin, Rudolph H., 36 W. 8th st.
Renneker, A. P. 1652 Baymiller ave.
Ricketts, B. Merrill, 408 Broadway.
Ricketts, Edwin S., 408 Broadway.
Riley, Estella M., 728 W. 7th st.
Rothenberg, Samuel, 22 W. 7th st.
Rouly, J., 912 Clark ave.
Rowe, James W., 20 W. 9th st.
Rulison, Ida B., 811 Considine ave.
Sater, Clifford, 510 Richmond ave.
Sattler, Erie, 109 Garfield pl.
Sattler, Robert, Groton Bldg.
Saunders, A. F., Groton Bldg.
Schmedter, W. C., 848 W. Liberty st.
Schmidt, Theodore W., 116 E. 9th st.
Schneck, W. Edward, 5 Garfield pl.
Schneerer, Frank, 1812 Baymiller ave.
Schorr, P. E., 2203 Clifton st.
Schrickel, Louis C., 1631 Walnut st.
Schroeder, J. H., 858 McMicken st.
Schwab, Louis, 1639 Blue Rock.
Schwagmeyer, August, 1909 Elm st.
Shaw, William E., 2974 Colerain ave.
Shields, E. H., 5 Garfield pl.
Shields, Percy, 5 Garfield pl.
Singleton, John B., 10 E. 9th st.
Smith, Decatur B., 901 W. 9th st.
Smith, Otis E., 1223 Walnut st.
Speidel, C. C. E., 167 E. McMillan st.
Solar, Frank M., 1999 State st.
Southgate, Louise, 38 Glenn st.
Stapleford, Abraham D., 2640 Western ave.
Stanton, Byron, 931 Dayton st.
Stark, Owen W., 11½ E. 8th st.
Stark, Sigman, 11½ E. 8th st.
Stevenson, John W., Third and Kilgour st.
Stewart, Robert W., Ortiz Bldg.
Straehley, Erwin O., 812 Dayton st.
Stricker, L., Groton Bldg.
Swartsel, Carey S., 1786 Elmore st.
Tangeman, Charles W., 20 W. 9th st.
Tate, Magnus A., 361 E. 3rd st.
Tate, Ralph B., 361 E. 3rd st.

Taylor, William J., 553 W. 7th st.
Terlinden, Henry T., 740 Laurel st.
Thompson, John A., 628 Elm st.
Thrasher, Allen B., 65 Groton Bldg.
Thrasher, Wade W., 65 Groton Bldg
Tischbein, Frederick J., 635 Delhi st.
Topmoeller, Joseph M., 823 Bank st.
Trush, Jacob, 437 E. 5th st.
Tennison, Isaac, 436 E. 5th st.
Twitchell, George B., 1616 Freeman.
Vail, Derrick T., 4 W. 7th st.
Van Meter, Cooley, 2941 Colerain st.
Vaughan, N. C., 2633 Park ave.
Walker, E. W., 30 Garfield pl.
Watson, Joseph, 2141 Eastern ave.
Weatherhead, David E., 77 Groton Bldg.
Weaver, Walter B., 32 Garfield pl.
Webb, Arnold G., 2617 Vine st.
Webb, Dudley, 413 Broadway.
Wendel, Henry C., 519 W.McMicken.
Wenning, William H., 722 Laurel st.
Whitacre, Horace J., 2120 Auburn ave.
Whitacre, Marion, 2116 Auburn ave.
Williams, John G., Cheviot.
Williams, Martha R., 803 Race st.
Williams, William H., 57 Groton Bldg.
Wilson, John B., 206 E 4th st.
Winn, T. T., Norwood.
Withrow, John M., 22 W. 7th st.
Wittkamp, Theodore M., 1437 Walnut st.
Wolfstein, David I., 22 W. 7th st.
Woodward, Warren R., 108 W. 9th st.
Zenner, Philip, 19 Glenn Bldg.
Zinke, Gustave E., 13 Garfield Bldg.

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Aikins, H. A., 40 Cornell st.
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Allen, Dudley P., 278 Prospect st.
Allen, F. Y., 637 Central ave.
Arnold, G. D., 716 East Prospect st.
Arny, H. V., 754 Republic st.
Ashmun, George C., 794 Republic st.
Bailey, R., 468 Willson ave.
Baker, A. R., 604 New England Bldg.
Baker, L. K., Rose Bldg.
Ballard, H. C., 1067 Pearl st.
Bard, I. W., 1341 Lorain st.
Barger, W. T., 486 Wade Park ave.
Becker, H. A., 1200 Pearl st.
Belkowski, I. W., 330 Woodland ave.
Belt, John H., 1434 Willson ave.
Berlin, W. C., 483 Prospect st.
Berneike, R. A., Collinwood.
Bernstein, S. L., care Alta Vista Hotel, Colorado Springs, Col.
Biggar, H. F., Jr., 260 Euclid ave.
Birge, R. E., 260 Euclid ave.
Bishop, H. F., 620 Rose Bldg.
Biskind, I. J., 198 Woodland ave.
Black, Jotham F., Rose Bldg.
Bliss, H. C., 413 Woodland ave.
Boesger, M. A., 862 Lorain st.

Boggs, Jessie, 1207 Euclid ave.
Borts, M., 975 Woodland ave.
Bourne, E. L., Brecksville.
Brainard, H. C., 1712 Superior st.
Bretz, I., 1273 Euclid ave.
Briggs, C. E., Euclid and Perry.
Brockett, A. J., 32 Hawthorne ave.
Brokaw, W. F., 1040 Willson ave.
Brown, E. D., 1617 Cedar ave.
Brown, E. E., 531 Prospect st.
Bruner, Wm. E., 514 New England Bldg.
Buell, J. J., 602 Pearl st.
Bunts, Frank E., 204 Osborn Bldg.
Burdick, H. J., 519 Cedar ave.
Burke, T. A., Rose Bldg.
Byrne, P. J., 299 Viaduct.
Calkins, T. J., 2500 Superior st.
Campbell, A. D., 2209 Superior st.
Campbell, O. B., 993 Cedar ave.
Capener, W. H., 415 Case ave.
Carey, M. J., 791 Doan st.
Carlisle, I. C., Glenville.
Carroll, F. S., 2564 Superior st.
Carter, Edward P., 260 Euclid ave.
Caruso, G., 9½ Woodland ave.
Case, G. B., 106 Euclid ave.
Cerri, N., 341½ Prospect st.
Chadwick, L. S., 1824 Euclid ave.
Chamberlain, Wm. B., Osborn Bldg.
Champlin, H. D., 662 Clark ave.
Childs, L. W., Wade Park and Dunham aves.
Clapp, H. T., New England Bldg.
Clark, F. S., Colonial Arcade.
Clark, T. W., Lakeside Hospital.
Clark, W. S., 778 Central ave.
Coates, B. O., 1732 Euclid ave.
Coates, F. M., Berea.
Cobb, Percy W., W. R. U. Medical College.
Cogan, J. E., 1117 Superior st.
Colver, Caroline B., 260 Euclid ave.
Conrad, Wm., 734 Rose Bldg.
Coontz, W. H., 29 Euclid ave.
Cook, A. J., 1395 Euclid ave.
Cook, J. E., 514 New England Bldg.
Coplan, M., 780 Lorain st.
Corlett, W. T., 553 Euclid ave.
Costello, Thos., 397 Willson ave.
Crile, G. W., 204 Osborn Bldg.
Crowe, E. P., 1968 Superior st.
Crowell, W. S., Franklin ave.
Cushing, Edward F., 1160 Euclid ave.
Darby, John C., 275 Prospect st.
Darby, J. E., 2238 Euclid ave.
Davis, F. W., 258 Franklin ave.
Dial, E. L., 1847 Lorain st.
Dickenson, J., 32 Sibley st.
Dickenson, J., Jr., 275 Prospect st.
Dolley, D. H., Charity Hospital.
Dunn, Joseph J., 984 Superior st.
Dutton, C. F., 626 Franklin ave.
Dye, J. H., 1430 Cedar ave.
Ebersole, W. G., Rose Bldg.
Eddy, R. C., 933½ Woodland ave.
Ehret, G. A., 362 Colonial Arcade.
Evans, S., 1075 Woodland ave.
Farnsworth, G. B., 679 Denison ave.
Feil, G. R., 1351 Willson ave.
Fischer, R., 811 Schofield Bldg.
Follansbee, G. E., 2475 Broadway.
Foote, C. G., 961 Prospect st.
Ford, Clyde E., Osborn Bldg.
Foshay, P. Maxwell, Chicago, Ill.
Francisci, M., 765 Lorain st.
Franke, F. C., 703 Woodland ave.
Fraser, J. M., 581 Erie st.
Friedmann, J., 465 St. Clair st.
Friedrich, M., City Hall.
Friend, J. M., 1065 Pearl st.
Fritch, J. C., 330 Pearl st.
Fry, R. D., Rose Bldg.
Gallagher, J. V., 800 Superior st.
Gartland, J. L., 466 Willson ave.
Gentsch, C., 167 Franklin ave.

George, O. E., 1207 Pearl st.
Gill, Wm. C., 275 Prospect st.
Goetz, F. E., 581 Woodland ave.
Goodwin, E. M., 2839 St. Clair st.
Green, Joseph B., U. S. Marine Hospital.
Gregory, W. M., Berea.
Gunsolly, W. N., Collinwood.
Haefele, G. L., 1473 Pearl st.
Hain, C. O., 794 Scranton ave.
Hamann, C. A., 661 Prospect st.
Handerson, H. E., 444 Dunham ave.
Hannum, B. G., 710 Rose Bldg.
Hannum, E. S., 1501 Clark ave.
Hanson, D. S., 1419 Broadway.
Hart, A. G., 102 Jennings ave.
Haskins, H. D., 2070 Detroit st.
Hatcher, R. A., 782 Republic st.
Havlicek, F. J., 133 Root st.
Heath, H. H., 275 Prospect st.
Heath, J. A., 10 Marquette st.
Heidler, G. K., 573 Kinsman st.
Heimlich, D., 521 Woodland ave.
Hendry, Wm., 1327 Cedar ave.
Herrick, F. C., 367 Erie st.
Herrick, H. B., 2531 Euclid ave.
Herrick, H. C., 43 Cutler st.
Herrick, H. J., 365 Erie st.
Herrick, W. H., 176 Euclid ave.
Hess, J. L., 444 Wade Park ave.
Hickin, F. W., 342 Jennings ave.
Hill, E. W., 600 Doan st., Glenville.
Hintzelman, C., 80 Randall st.
Hobson, John F., Lakewood.
Hobson, Joseph F., 429 Prospect st.
Hobson, Willis S., 2238 Euclid ave.
Hole, C. M., 300 Cedar ave.
Holliday, B. W., Euclid and Russell aves.
Holliday, W. W., 30 Miles Park ave.
Holmes, G., 688 West Madison ave.
Hoover, C. F., Rose Bldg.
Hosick, W. A., 1613 Woodland ave.
Houck, E. O., 361 Dunham ave.
House, A. F., 1051 Superior st.
Howard, A. B., Cleveland State Hospital.
Howard, W. T., Jr., 88 Dorchester ave.
Howland, A. P., 1174 Willson ave.
Humiston, W. H., Rose Bldg.
Hutchins, F. C., 350 Jennings ave.
Hyde, W. H., 247 West Madison ave.
Iddings, George S., Caxton Bldg.
Ingersoll, J. M., 50 Euclid ave.
James, W. S., 1519½ Lorain st.
Jaster, C. O., C. State Hospital.
Jenkins, A. A., Charity Hospital.
Jones, J. A., 424 Willson ave.
Jones, J. D., 1635 Harvard st.
Jones, N. M., Charity Hospital.
Kaestlen, S. E., 50 McLean st.
Kahn, M., 698 Woodland ave.
Kelly, J. F., Cleveland State Hospital.
Kelly, S. W., 1150 Superior st.
Kerruish, M. G., 1014 Euclid ave.
Kinnanan, C. L., 1474 Cedar ave.
Kinnicut, W. H., Y. M. C. A.
Klaus, Max H., Woodland ave.
Knowlton, W. A., 530 Jennings ave.
Knowlton, W. H., Independence.
Kofron, J. V., 1560 Broadway.
Kopfstein, Frank, 2300 Superior st.
Kottershall, Joseph J., St. John's Hospital.
Krause, B., 1465 Willson ave.
Krebs, P. H., 1007 Pearl st.
Kurtz, H. B., 506 Wade Park ave.
Ladd, L. W., 275 Prospect st.
Laffer, W. B., 962 Willson ave.
Large, S. H., Rose Bldg.
Lauder, E. S., Osborn Bldg.
Lawlor, R. J., 1419 Woodland ave.
Lee, H. J., 73 Tilden ave.
Lefevre, W., Rose Bldg.

Leick, George F., 503 Prospect st.
Lenker, J. N., Osborn Bldg.
LeRoy, B. E., Chagrin Falls.
LeSage, G. E., 1467 Willson ave.
Levenburg, B., 556 Woodland ave.
Lewis, J. M., Rose Bldg.
Lichty, M. J., Genesee and Hough aves.
Lincoln, Walter R., Lennox Bldg.
Lincoln, Wm. R., Lennox Bldg.
Linden, W. E., 1200 Case ave.
Linn, F. W., 1111 Lorain st.
Lowenthal, M., 1220 Case ave.
Lower, W. E., Osborn Bldg.
Lowman, J. H., 441 Prospect st.
Lucas, V. C., 1158 Pearl st.
Lucas, W. H., 853 Lorain st.
Luck, H. C., 870 Hough ave.
Leuke, A. W., Schofield Bldg.
MacLeod, John J. R., W. R. U. Med. School.
MacTaggart, R. A., 436 Pearl st.
McGee, J. B., 1405 Woodland ave.
McMichael, J. C., Glenville.
McNamara, A. J., 176 Euclid ave.
McPeck, E. E., 855 Hough ave.
Mabley, H. C., 2088 Euclid ave.
Martin, Thomas Charles, 729 Case.
Marvin, A. H., Rose Bldg.
Maschke, A. F., 1200 Case ave.
Mead, A. H., 25 Brainard ave.
Merriam, W. H., Osborn Bldg.
Metzenbaum, M., 1117 Case ave.
Miller, A. H., 997 Pearl st.
Milliken, B. L., 278 Prospect st.
Mizer, T. J., 797 Lorain st.
Moore, J. M., 1960 St. Clair st.
Moorehouse, G. W., 842 Logan ave.
Morton, F. J., 962 Lorain st.
Mueller, O,, 509 Pearl st.
Nachtigall, B. A., 1207 Pearl st.
Nash, A. C., 642 Hough ave.
Nelson, C. F., 604 New England Bldg.
Newberger, John, 334 Pearl st
Norton, F. B., 150 Kennard st.
Nungesser, J. J., 2160 Superior st.
Nydegger, R., 166 Jennings ave.
Oakley, R. G., 855 Rose Bldg.
Ormsby, H. B., Central and Brownell.
Osborn, W. O., Osborn Bldg.
Oster, L. W., 1261 St. Clair st.
Oswald, B. F., 2010 Detroit st.
Parke, M. J., 331 Prospect st.
Parker, C. B., 425 Euclid ave.
Paulin, N. O., 962 Willson ave.
Pav, A., 1574 Willson ave.
Perkins, R. G., 1527 Euclid ave.
Peskind, A., 1354 Willson ave.
Peskind, S., 1354 Willson ave.
Petrie, Minette, 719 Giddings ave.
Placak, Joseph, City Hospital.
Pollock, R., 558 Hough ave.
Pope, Carlisle, 260 Euclid ave.
Povey, W. G., 693 Hough ave.
Powell, H. H., 467 Prospect st.
Pressy, A. J., 900 Fairmount st.
Proctor, J. H., Lakeside Hospital.
Propper, I. J., 368 Woodland ave.
Ranney, A. J., Lakeside Hospital.
Rayle, Wm. L., Doan and Hulda sts.
Rhodes, E. B., 3425 Euclid ave.
Riegelhaupt, S., 1012 New England Bldg.
Riley, J. A., 1314 Cedar ave.
Robb, Hunter, Rose Bldg.
Rogers, H. W., 128 Franklin ave.
Rosenberg, E., 1597 Woodland ave.
Rosenwasser, M., 722 Woodland ave.
Rosewater, N., 1351 Willson ave.
Roth, Frank, City Hospital.
Russell, G. C., Williamson Bldg.
Sager, B. E., 243 Crawford Road.
Sawyer, J. P., Rose Bldg.

Sawyer, P. H., 54 Streator ave.
Schmoldt, F. J., 1696 Superior st.
Schnee, R. J., 2004 Superior st.
Scott, N. S., Citizens Bldg.
Scully, A. P., 222 Detroit st.
Searles, W. A., Rose Bldg.
Season, E. H., 2238 Euclid ave.
Sechrist, C., Rose Bldg.
Seidell, R. R., Bedford.
Selby, Clarence D., St. Alexis Hospital.
Selleck, S. L., 1448 Willson ave.
Shackelton, W. E., Osborn Bldg.
Sherman, H. G., Rose Bldg.
Shirkey, U. S. L., 1357 Lorain st.
Siegelstein, L. E., 333 Woodland ave.
Sihler, C., 1 Franklin Court.
Sipher, J. N., 76 Euclid ave.
Skeel, A. J., 1495 Pearl st.
Skeel, R. E., Prospect st.
Smigel, P. S., 2086 Broadway.
Smith, C. W., 260 Euclid ave.
Smith, D. B., 315 The Arcade.
Smith, E. A., 726 East Prospect st.
Smith, G. S., 260 Euclid ave.
Smith, J. R., 396 Jennings ave.
Snow, L. B., 122 Euclid ave.
Snow, M., 143 Clinton st.
Sollman, T., W. R. U. Medical Department.
Somerville, G. H., 2549 Broadway.
Spence, H. L., 1160 East Madison ave.
Spenzer, John G., Rose Bldg.
Spurney, A. F., 864 Woodland ave.
Steiner, A., Osborn Bldg.
Stepp, M. D., 7 Minnesota st.
Stern, W. G., 516 Rose Bldg.
Steuer, D. B., 465 St. Clair st.
Steuer, J. C., 3 Woodland ave.
Stevenson, G. W., 180 Oakdale st.
Stillman, G. B., 1318 Cedar ave.
Stoll, C. N., Dover.
Stotter, J., Rose Bldg.
Stovering, F. A., 334 Pearl st.
Straight, H. S., 321 Hickox Bldg.
Stuart, C. C., 408 Jennings ave.
Suchy, F. H., Bertram and Central.
Sunkle, R. H., Pearl and Clark.
Sykora, J., 1449 Broadway.
Taylor, F. C., Pearl and Franklin.
Thomas, J. J., 156 Crawford Road.
Thomas, O. T., 50 Euclid ave.
Tierney, J. S., Rose Bldg.
Towslee, L. G., Osborn Bldg.
Tripp, I. A., Nottingham.
Tuckerman, J. E., 298 Central ave.
Updegraff, R. H., City Hospital.
Upson, G. D., Hickox Bldg.
Upson, H. S., 514 New England Bldg.
Vincent, H. D., 499 Pearl st.
Wagner, H. G., Rose Bldg.
Waite, F. C., W. R. U. Med. Col.
Walker, C. S., E. Prospet & Willson.
Ward, Chas. E., 331 Jennings ave.
Warner, M. F., New England Bldg.
Warner, W. C., 739 Hough ave.
Waugh, J. M., 3584 Euclid ave.
Weber, W. C., Rose Bldg.
Webster, C. L., 411 E. Prospect st.
Webster, S. J., South Brooklyn, O.
Weideman, Ethel M., Detroit and Highland ave.
Wheelock, L. A., 2794 Euclid ave.
White, D. K., Osborn Bldg.
Wier, W. H., 260 Euclid ave.
Williams, C. D., Lakeside Hospital.
Williams, Robt. A., 664 Cutler ave.
Williams, T. B., 145 Quincy st.
Wirt, Wm. E., 477 Prospect st.
Wood, J. S., Collinwood, Ohio.
Wood, W. H., 526 Rose Bldg.
Woodford, E. W., 737 Detroit st.
Woolgar, W. G., 1444 Cedar ave.
Yarian, N. C., 1131 Detroit st.

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Gaston, E. M., West Union.
Glasgow, Joseph A., Seaman.
Guthrie, John W., Manchester.
Irwin, R. W. E., Manchester.
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Jordan, James D., Manchester.
Kirkpatrick, Oscar B., Cherry Fork.
Littleton, Robert Y., Stouts.
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Loney, W. B., West Union.
Martin, Albert B., Bentonville.
McCormack, George D., Wamsley.
McCreight, G. C., West Union.
Noble, Arthur, Winchester.
Purdy, Robert W., Bradyville.
Robe, Orwin W., Peebles.
Sproull, Oliver T., West Union.
Stephenson, Robert A., Manchester.
Stephenson, Titus, Cherry Fork.
Thomas, George F., Peebles.
Wickerham, James O., Seaman.
Wikoff, Albert A., Decatur.
Wittenmeyer, James M., Peebles.

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Bice, A. W., Lima.
Burton, E. G., Lima.
Creps, A. H., Lima.
Davidson, Monroe, West Newton.
Edwards, Edward, Delphos.
Hiner, S. B., Lima.
Hover, W. E., Lima.
Huntley, J. H., Lima.
Jones, A. L., Lima.
Laudick, J. F., Lima.
Mathews, J. F., Lima.
Moots, C. W., Delphos.
Mumaugh, S. S., Lima.
Murphy, John, Lima.
Parent, W. H., Lima.
Rudy, A. S., Lima.
Steiner, D. W., Lima.
Steiner, I. F., Lima.

Steiner, Oliver, Lima.
Steuber, F. G., Lima.
Steuber, L. J., Lima.
Terwilliger, T. R., Lima.
Thomas, T. R., Lima.
Vail, J. B., Lima.
VanNote, William B., Lima.
Weadock, E. G., Lima.
Wegar, George S., Delphos.

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Case, C. E., Ashtabula.
Crockett, E., Ashtabula.
Dickson, J. A., Ashtabula.
Dickson, O. A., Jefferson.
Ellsworth, W. O., Austinburg.
Gilchrist, W. L., Ashtabula.
Grover, C. T., Andover.
Hogan, J. J., Ashtabula.
Hopkins, A. W., Ashtabula.
Houghtaling, F. M., Austinburg.
King, W. H., Ashtabula.
Leet, William, Conneaut.
Linn, S. M., Ashtabula.
Merriam, E. D., Conneaut.
Palmer, D. G., Geneva.
Pomeroy, A. L., Windsor.
Sargent, F. L., Andover.
Snyder, F. D., Ashtabula.
Tower, B. M., Conneaut.
Upson, F. W., Conneaut.
Warner, O. N., Conneaut

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Biddle, D. H., Athens.
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Crawford, A. J., Glouster.
Crossen, K. T., Carbondale.
Danford, E. F., Glouster.
Danford, H. D., Trimble.
Danford, V. G., Trimble.
Gibson, H. G., Glouster.
Hawk, Phillip, Athens.
Henry, J. L., Athens.
Henry, Z. L., Amesville.
Holmes, H. F., Albany.
Howard, J. M., Amesville.

Hyde, J. M., Nelsonville.
Koons, E. S., Glouster.
Lawrence, A. E., Coolville.
Learned, A. J., Millfield.
Lee, H. T., Athens.
McDougall, Charles S., Athens.
McVay, F. P., Athens.
Merwin, J. T., Athens.
Petigo, S. E. G., Marshfield.
Prichard, A. L., Nelsonville.
Primrose, I. P., Nelsonville.
Stamm, John, Jacksonville.
Steel, J. H., Guyville.
Stout, J. J., Luhrig.
Tinker, K., Athens.
White, U. P., Athens.
Wilson, C. L., Athens.
Wilson, Milo, Athens.

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Berry, J. C., Alledonia.
Berry, Jacob E., Powhattan.
Blackford, J. M., Martin's Ferry.
Boone, Dexter William, Bellaire.
Carle, W. R., Neffs.
Clark, John A., Bellaire.
Cole, C. C., Bridgeport.
Cooper, Joseph Walker, Bellaire.
Cope, E. C., Barton.
Diven, Arlington W., Martin's Ferry.
Drennan, J. N., Lloydsville.
Eddy, Henry B., Bellaire.
Ely, J. S., Barnesville.
Harris, W. P., Shadyside.
Heath, J. M. S., Bellaire.
Heinlein, Andrew, Bridgeport.
Hewitson, A. H., St. Clairsville.
Hewitson, E. S., St. Clairsville.
Hobson, A. B., Flushing.
Hobson, J. A., Flushing.
Howells, James O., Bridgeport.
Johns, John, Martin's Ferry.
Judkins, W. L., Barnesville.
Kern, J. T. W., Bellaire.
Korrell, F. A., Key.
McClellan, J. S., Bellaire.
McMasters, I. N., Demos.
Marsh, V. N., Flushing.
Meek, J. H., Glencoe.
Moffatt, John W., Glencoe.
Murphey, D. M., Bethesda.
Ong, A. R., Martin's Ferry.
Philips, D. S., Morristown.
Piersol, Joseph, Bellaire.
Piper, J. W., Bethesda.
Piper, Wm. O. S., Bellaire.
Shepard, D. O., Barnesville.
Warren, William S., Businessburg.
Williams, B. O., Martin's Ferry.
West, J. Park, Bellaire.
West, Samuel L., St. Clairsville.
Wilson, James G., Colerain.

BROWN COUNTY MEDICAL SOCIETY.

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Wesley Love.....Vicepresident.
R. B. Hannah.....Secretary and Treasurer.

MEMBERS

Clemons, Joseph, New Hope.
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Francis, A. W., Ripley.
Gilfillan, A., Russellville.
Guthrie, H. S., Higginsport.
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Hannah, R. B., Georgetown.
Kautz, J. W., Hamersville.
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Matthews, C. H., Mt. Orab.
Mitchell, A. W., Georgetown.
Shelton, H. P., Georgetown.
Stephenson, Y., Georgetown.
Williamson, J. H., Higginsport.

CARROLL COUNTY MEDICAL SOCIETY.

J. R. Williams.....President.
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J. J. Hathaway.....Secretary and Treasurer.

MEMBERS

Clark, C. S., Leesville.
Everhart, D. L., New Harrisburg.
Harding, H. A., Kilgore.
Harsh, H. E., Magnolia.
Hathaway, J. J., Carrollton.
Hise, A. H., Carrollton.
Lechner, S. B., Dell Roy.
Ross, C. H., Dell Roy.
Ross, E. C., Malvern.
Spratt, W. R., Malvern.
Whiteleather, Thomas N. P., Malvern.
Williams, J. R., Carrollton.
Ziegler, C. R., Carrollton.

CHAMPAIGN COUNTY MEDICAL SOCIETY.

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D. R. Emmons.....Vicepresident.
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Censors—Robert Henderson, H. B. Hunt, H. M. Pearce.

MEMBERS

Emmons, D. R., N. Lewisburg.
Grimes, R. L., Westville.
Hampshire, J. F., St. Paris.
Henderson, Richard, Urbana.
Henderson, Robert, Urbana.
[illegible]er, D. C., Millerstown.
Hunt, H. B., St. Paris.
Longfellow, J. V., Urbana.
Ludlow, E. W., Urbana.
McLaughlin, C. M., Westville.
Morman, L. M., Millerstown.
Mosgrove, S. M., Urbana.

O'Brine, D., Urbana.
Offenbacher, C. A., St. Paris.
Owens, O. J., Rosewood.
Pearce, H. M., Urbana.
Pickering, G. W., Urbana.
Preston, H. S., Mutual.
Smith, M. L., Urbana.
Zellar, H. R., St. Paris.

CLARK COUNTY MEDICAL SOCIETY.

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C. S. Ramsey.....First Vicepresident.
D. K. Gotwald.....Second Vicepresident.
W. N. Prince.....Secretary.
Henry Baldwin .....Treasurer.
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Baldwin, Henry, Springfield.
Bell, R. L., Springfield.
Bliss, Theodore Frelinghizen, Springfield.
Bright, William Edgar, North Hampton.
Brubaker, George F., Springfield.
Buckingham, John Milton, Springfield.
Cosler, Harry Abraham, North Hampton.
Davis, Emory Francis, Springfield.
Davis, Jesse Otis, Springfield.
Dugan, John Parks, Springfield.
Dye, Eliza Adam, Vienna Cross Roads.
Evans, Charles Westley, Springfield.
Evans, O. Hayden, Springfield.
Farr, Thomas G., South Charleston.
Gotwald, David King, Springfield.
Harris, Ezra Chipps, Springfield.
Harris, John Howard, Clifton.
Hebble, Robert C., Enon.
Heistand, Clinton M., Springfield.
Heistand, Horace Leffel, Donnellsville.
Hulick, John Wilbur, Springfield.
Hutchings, Stanley Richard, Springfield.
Kay, Clarence Henry, Springfield.
Link, Joseph Anthony, Springfield.
MacGregor, Alexander, Springfield.
Miller, Ellwood, Enon.
Minor, Charles L., Springfield.
Moore, John Joseph, South Charleston.
Myers, John Ezra, Springfield.
Myers, Noah, Springfield.
Patton, Montgomery VanBuren, Springfield.
Patton, William B., Springfield.
Prince, Walter Norman, Springfield.
Ramsey, Clarence Scott, Springfield.
Rind, Robert Conrad, Springfield.
Seward, Ira Earl, Springfield.
Seys, Henry Hill, Springfield.
Showalter, Daniel Webster, Springfield.
Simon, Louis Lawrence, Springfield.
Spence, David Walter, Springfield.
Stafford, Frank P., New Carlisle.
Thomas, Jay Dunham, Catawba.
Titlow, Bennetta Davis, Springfield.
Vance, Allen Haines, Springfield.

CLERMONT COUNTY MEDICAL SOCIETY.

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C. A. Bennett.....Vicepresident.
E. C. Ireton.....Secretary.
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MEMBERS

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Ashburn, A. W., Batavia.
Belt, Charles, Batavia.
Belt, R. C., Milford.
Bennett, C. A., Withamsville.
Carmichael, W. A., Loveland.
Curry, F. C., Milford.
Formorin, J. L., Marathon.
Gatch, Con, Milford.
Hosteter, C. E., Pt. Pleasant.
Ireton, E. C., Marathon.
Kennedy, Philip, Laurel.
Leever, W. E., Owensville.
Mitchell, T. A., Owensville.
Wakefield, J. D., Loveland.

CLINTON COUNTY MEDICAL SOCIETY.

A. T. Quinn.....President.
E. Briggs .....Secretary.
George W. Wire.....Treasurer.

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Briggs, E., Wilmington.
Conrad, G. R., New Vienna.
Cooksey, T. L., Wilmington.
Craig, T. E., Sabina.
Lambright, Simeon, Lee's Creek.
Lightner, S. B., Sabina.
McKenzie, J. B., Oakland.
Peelle, F. L., Wilmington.
Quinn, A. T., Wilmington.
Snook, C. W., Clarksville.
Telfair, G. M., Bloomingburg.
Tribett, C. A., Westboro.
Trimble, R. T., New Vienna.
Whisler, H., New Antioch.
Wire, G. W., Wilmington.

COLUMBIANA COUNTY MEDICAL SOCIETY.

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Arthur B. Holland.....Vicepresident.
William E. Morris .....Secretary and Treasurer.

MEMBERS

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Anderson, James, Salem.
Bailey, W. N., East Liverpool.
Barckhoff, P. E., Salem.
Blau, H. H., East Liverpool.
Blazer, H. E., Salineville.
Bloom, D. M., New Waterford.
Bookwalter, Harry, Columbiana.
Booth, W. J., Salem.
Calhoun, William M., East Liverpool.
Calvin, H. M., Salineville.
Campbell J. S., West Point.
Clark, William R., East Liverpool.
Cope, A. L., Winona.
Elliott, James T., East Liverpool.
Gilmore, W. N., West Point.
McCready, S. R., Lisbon.
McFarland, W. S., Wellsville.
McIntire, A. L., Columbiana.
Metz, J. Arthur, East Liverpool.

Graham, Frank, Lisbon.
Hamilton, William W., East Liverpool.
Hammond J. W., Wellsville.
Harrison, Frank R., East Liverpool.
Hartford, P. C., East Palestine.
Heck, Stephen, Salem.
Hemphill, S. W., East Liverpool.
Hendershot, O. M., East Liverpool.
Herbert, J. L., Hanoverton.
Hobbs, W. A., East Liverpool.
Holland, A. B., Wellsville.
Hutcheson, F. K., Wellsville.
Ikirt, George P., East Liverpool.
Johnston, C. E., East Palestine.
Jones, D. J., Salineville.
Lemmon, L. A., East Liverpool.
Lindsay, J. A., Salineville.
Louthan, E. C., Clarkson.
Marquis, Thomas B., Lisbon.
Marshall, R. J., East Liverpool.
McCommon, W. A., East Palestine.
Miles, F. T., Salem.
Moore, F. O., Lisbon.
Moore, William, Lisbon.
Morris, W. E., Lisbon.
Mowen, W. E., East Liverpool.
Nevin, W. C., Lisbon.
Noble, Angus, Wellsville.
Ogden, C. B., East Liverpool.
Patterson, S. J., Elkton.
Rhodes, O. A., Salem.
Robinson, A. L., Wellsville.
Rowland, G. O., East Palestine.
Schwartz, E. J., Salem.
Scott, Frank, Rogers.
Shry, O. D., East Liverpool.
Talmage, J. B., Columbiana.
Taylor, William J., East Liverpool.
Thompson, H. W., Salem.
Toot, Joseph E., East Liverpool.
Trimmer, E. Luther, East Liverpool.
Van Fossen, J. M., East Palestine.
Yengling, A. C., Salem.

COLUMBUS ACADEMY OF MEDICINE.

Francis W. Blake.....President.
Hugh Hendrixson .....Vicepresident.
John Dudley Dunham.....Secretary.
William C. Davis.....Treasurer.

MEMBERS

Allaman, W. E., Protestant Hospital.
Baldwin, H. A., Grant Hospital.
Baldwin, James F., Grant Hospital.
Bartley, Michael A., 795 West Broad.
Barnhill, James U., 248 East State.
Bay, William F., 755 North High.
Beery, Joseph E., 802 West Broad.
Benkert, Louis C., 165 East Russell.
Blackburn, Marinda E., 768 North High.
Blake, Francis W., 185 East State.
Bishop, John C., 62 East Broad.
Bonnett, Andrew O., 220 East State.
Bradley, Isabel A., Columbus State Hospital.
Brown, John E., 239 East State.
Burgoyne, John A., 137 East State.
Carleton, Elmer E., 774 Mt. Vernon.
Carter, Clarence C., 300 East Long.
Clark, Charles F., 188 East State.
Clemmer, J. W., 112 Parsons ave.
Coleman, Nathaniel R., 264 East Town.
Collison, F. J., Cor. Town and Sixth.
Combs, Rebecca V., 1185 Franklin.
Cooper, Albert, 44 East Duncan.
Cooperrider, Charles A., 270 South Fourth.
Courtright, Theodore E., 183 East State.

Custer, Harry J., 62 East Broad.
Darby, Franklin H., 38 West First.
Davenport, Albert B., Miller and Franklin.
Davidson, N. P., Hilliards.
Davis, William C., 200 East State.
Dennis, Charles D., 53 East Rich.
Deuschle, William D., 119 Lexington.
Dixon, Myrwood T., 576 South Third.
Dunham, John Dudley, 187 East State.
Dunham, John M., 222 East Town.
Early, Lewis M., 1045 East Long.
Emerick, Edson J., 1126 Neill.
Evans, Earl W., 1450 North High.
Evans, Arthur E., 145 East Long.
Farrar, Holway D., 195 East State.
Fraker, Harvey C., 342 South Ohio.
Frame, John A., 138 East State.
Fullerton, Erskine B., 129 East State.
Gabriel, Harry G., 101 West Rich.
Garrett, H. R., 209½ North High.
Gaver, Earl E., Columbus State Hospital.
Geissinger, H. W., Grove City.
Gilliam, D. Todd, 50 North Fourth.
Gilliam, Earl M., 50 North Fourth.
Goodman, Sylvester J., 328 East State.
Gordon, John L., 2555 North High.
Haines, John H., 22 West Gay.
Hamilton, Charles S., 1 North Fourth.
Hamilton, Edwin A., 860 East Main.
Hamilton, H. M., 964 South High.
Hamilton, William D., 1 North Fourth.
Harding, George T., Columbus State Hospital.
Harris, Herman L., 152 Sycamore.
Harrod, C. Lorain, 185 East State.
Hatton, Edgar M., Hotel Vendome.
Hendrixon, Ola S., 186 West Fifth.
Herbst, Edward, 716 South High.
Hoglan, George W., 135 East Long.
Hoppe, Hermann, Columbus.
Hoover, Thomas C., 249 East State.
Hunter, H., 830 South High.
Inglis, W. D., Cor. High and Russell sts.
Johnson, F. L., Worthington.
Johnston, Alice M., 32 Lexington.
Jones, Harry S., East Main.
Jones, John F., West Goodale.
Kahn, Louis, 342 South Fourth.
Kaler, A. F., Park View Sanatorium.
Kidd, R. A., Shepard.
Kinsell, Denman R., 134 East State.
Kinsman, David N., The Normandie.
Kious, Harvey C., North High.
Kuhn, E. T., 802 North High.
Lawrence, Florus F., 328 East State.
Leach, Sherman, 818 North High.
Linhart, Christopher P., The Vendome.
Lott, F. L., St. Clair and Mt. Vernon ave.
Magruder, Jesse J., 111 Cleveland.
Mayhugh, George H., Westerville.
McCafferty, Frank, 43 East Main.
McClure, James A., 29 West Fifth.
McComb, J. Baldwin, 185 East State.
McCoy, C., 185 East State.
McGavran, Charles W., 142 East Long.
McKitrick, Lewellyn, Dublin.
Means, Charles S., 715 North High.
Mizer, Ira, 745 South High.
Moore, Dickson L., 141 East State.
Murphy, Joseph A., 49 East Chestnut.
Nessley, George B., Grove City.
Norris, King A., 716 Neil.

Oman, E. S., 101 Starr.
Persinger, Carey, 1076 East Main.
Phillips, James McI., Grant and Long.
Pickering, W. C., 966 Parsons ave.
Platter, Herbert M., 102 North Fourth.
Pritchard, W. H., Columbus State Hospital.
Probst, Charles O., 185 East State.
Rankin, Theodore W., 137 East State.
Ranchous, Walter E. M., 1273 North High.
Rauschkolb, John, 246 East Fulton.
Ray, Kathryn M., 222 North 18th.
Reynolds, J. F., 874 Mount Vernon.
Riebel, J. A., 504 North Park.
Rodebaugh, H. A., North Park.
Rogers, George W., 94 East First.
Rogers, William K., 188 East State.
Ross, Clarence C., 1447 Oak.
Rutter, Henly E., 185 East State.
Schueller, Erwin W., 465 South High.
Scott, Ernest, 998 North High.
Sharp, R. J., 1906 Parsons ave.
Shepard, Charles J., 1187 Neil.
Shepard, Charles M., 112 North Fourth.
Shriner, Pinckney D., 329 South Third.
Smith, McKendree, Board of Health.
Snively, H. H., Second ave. and High.
Snyder, D. J., 1355 North High.
Spohr, Carl L., 464 South High.
Stage, A. L., 64 East Town.
Stein, George S., 820 South High.
Steinfeld, Alexander M., 72 Parsons.
Stillman, Frank L., 118 East Broad.
Stockton, George, Columbus State Hospital.
Tarbell, Robert C., 112 East Broad.
Taylor, Sterling B., 344 East Rich.
Teachnor, W., 187 East State.
Thomas, John M., Ohio Penitentiary.
Timberman, Andrew J., 112 East Broad.
Turner, Charles E., 883 Mount Vernon.
Turney, Charles Fremont, 1000 Mount Vernon.
Upham, John H. J., 112 East Broad.
Verdin, H. M., Fifth ave., nr. Cleveland.
Wardlow, Yeatman, 120 East Broad.
Warner, Frank, Park Hotel Bldg.
Waters, George M., 1396 Neill ave.
Whitaker, Henry W., 72 South Grant.
Whitehead, Howard, 230 West Broad.
Wilcox, Starling S., 173 East State.
Williard, George W., 102 North Fourth.
Wilson, Edward J., 112 East Broad.
Winders, Frank, The Lexington.
Wolfe, Albertus C., 35 West Fourth.
Wright, John W., 141 East Long.
Youmans, Thomas G., 112 East Broad.

COSHOCTON COUNTY MEDICAL SOCIETY.

J. G. Carr.....President.
J. D. Lower.....Vicepresident.
C. R. Kitsmiller.....Secretary.
F. M. Marshall.....Treasurer.

MEMBERS

Beall, J. T., Coshocton.
Brady, E. L., Coshocton.
Buker, C. H., Spring Mountain.
Carr, E. C., Coshocton.
Carr, J. G., Coshocton.
Chaney, G., New Milford.
Crisswell, D. M., Plainfield.
Dillon, J., New Castle.
Edwards, R. C., Coshocton.
Freer, W. C., Coshocton.
Henderson, A. M., Roscoe.
Hennell, W. H., Coshocton.
Hutton, J. F. C., Coshocton.
Kitsmiller, C. R., Avondale.
Leer, T. W., Coshocton.
Lower, J. D., Bakersville.
Marquand, E. V., Conesville.
Marshall, F. M., Coshocton.
McClain, Jesse, Coshocton.
McCurdy, H. R., Coshocton.
McCurdy, L. C., Coshocton.
Merriman, R. K., Coshocton.
Neldon, C. M., Coshocton.
Sands, Walhanding.
Shumaker, D. M., West Bedford.
Stacy, S. A., Coshocton.
Wright, E. M., Warsaw.
Yarnell, F. H., West Lafayette.

CRAWFORD COUNTY MEDICAL SOCIETY.

B. R. Miller.....President.
T. L. Brown.....Vicepresident.
R. S. Reid.....Secretary.
C. E. Trimble.....Treasurer.
Censors—H. N. Bowen, J. F. Fitzsimmons, E. D. Helfrich.

MEMBERS

Bevington, E. E., Sulphur Springs.
Bland, G., Bucyrus.
Birk, J. N., Bucyrus.
Brubaker, P. B., Bucyrus.
Bowen, H. N., New Washington.
Brown, T. L., Galion.
Caris, Tod, Bucyrus.
Duncan, A. M., Bucyrus.
Fitzsimmons, J. F., Bucyrus.
Helfrich, E. D., Galion.
Kemp, L., Bucyrus.
Koch, W. A., Bucyrus.
Loyer, A. E., New Washington.
Marquart, A. C., Crestline.
Martin, J. J., Bucyrus.
Miller, B. R., New Washington.
Moses, J. B., Crestline.
Reid, R. S., Bucyrus.
Trimble, C. E., Crestline.
Yeomans, William L., Bucyrus.

DEFIANCE COUNTY MEDICAL SOCIETY.

C. E. Slocum.....President.
J. J. Reynolds.....Vicepresident.
Katherine Hoover .....Secretary.

MEMBERS

John, Defiance.
Robert J., Defiance.
Hoover, Katherine, Defiance.
Powell, W. S., Defiance.

Reynolds, J. J., Defiance.
Rigrish, George A., Defiance.
Slocum, C. E., Defiance.
Stevens, M. B., Defiance.
Westrick, John D., Defiance.

FAIRFIELD COUNTY MEDICAL SOCIETY.

J. H. Goss.....President.
G. O. Beery.....Secretary.
S. Renshaw .....Treasurer.

MEMBERS

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Arnold, Elwood E., W. Salem.
Atkinson, F. P., Millersport.
Axline, J. H., Lancaster.
Baker, W. E., Pleasantville.
Beery, G. O., Lancaster.
Brown, H. A., Carroll.
Chapman, J. E., E. Rushville
*Courtright, G. S., Lithopolis.
Driver, O. P., Bremen.
Farley, J. T., Dumontville.
Gage, R. S., Carroll.
Goss, C. W., Lancaster.
Goss, J. H., Lancaster.
Harman, G. A., Lancaster.
Hazelton, H. M., Lancaster.
Hensel, C. M., Lithopolis.
Heston, E. N., Thurston.
Heston, H. E., Baltimore.
Hewetson, J. E., Amanda.
Huddle, G. P., Stoutsville.
Hufford, J. T., Clearport.
Lamb, W. H., Baltimore.
LeCrone, T. W., Millersport.
Leist, G. G., Royalton.
Luke, Z. V., Basil.
Mason, T. R., Sugar Grove.
Miller, S. A. D., Lancaster.
Monhank, R. W., Royalton.
Plum, H. R., Lancaster.
Rauch, E. P., Lancaster.
Renshaw, S., Sugar Grove.
Roller, G. W., Lancaster.
Samson, H. M., Lancaster.
Samson, W. S., Lancaster.
Silbaugh, J. J., Lancaster.
Stuckey, F. P., Lancaster.
Stuckey, J. M., Lancaster.
Young, O. R., W. Rushville.

*Life member.

FAYETTE COUNTY MEDICAL SOCIETY.

G. W. Blakeley.....President.
S. A. Ireland.....Vicepresident.
A. O. Erwin.....Secretary.
A. O. Erwin.....Treasurer.
Censors—L. M. McFadden, J. E. Furry, G. W. Holdren.

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Boggs, Samuel E., Good Hope.
Brock, L., Washington C. H.
Erwin, A. O., Washington C. H.
Furry, J. E., Washington C. H.
Holdren, G. W., Bloomingburg.
Howell, L. P., Washington C. H.
Hughey, J. W., Washington C. H.

Hughey, R. M., Washington C. H.
Hyer, A. A., Buena Vista.
Hyer, F. E., Bloomingburg.
Ireland, S. A., Washington C. H.
Ireland, W. E., Washington C. H.
May, J. B., New Holland.
McFadden, L. M., Staunton.
Morgan, R. T., Washington C. H.
Pine, Lucy, Washington C. H.
Rowe, D. H., Jeffersonville.
Scott, J. B., Washington C. H.
Scurlock, Winfred S., New Holland.
Teeters, Charles A., Jeffersonville.
Todhunter, E. F., WashingtonC.H.

FULTON COUNTY MEDICAL SOCIETY.

Edwin R. Murbach.....President.
Parker S. Bishop.....Vicepresident.
Louie C. CosGrove .....Secretary.
William D. Murphy.....Treasurer.
Censors—Charles H. Heffron, Arthur B. Lathrop, Peter J. Lenhart.

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Backus, Leonard C., Fayette.
Bennett, Charles E., Wauseon.
Bishop, Parker S., Delta.
Bishop, Sylvester P., Delta.
Blair, Thomas, Lyons.
Brailey, Harry E., Swanton.
Campbell, Clair S., Tedrow.
CosGrove, Louie C., Swanton.
CosGrove, Sylvanus. F., Swanton.
Evers, John W., Fayette.
Fauster, John U., Archbold.
Hartman, George W., Wauseon.
Heffron, Charles H., Metamora.
Kaylor, F. B., Metamora.
Lathrop, Arthur B., Swanton.
Lenhart, Peter J., Wauseon.
McGuffin, George, Pettisville.
Miller, Jay H., Wauseon.
Murbach, Edwin A., Archbold.
Murphy, William D., Fayette.
O'Dell, Samuel, Swanton.
Parker, Hal M., Delta.

GALLIA COUNTY MEDICAL SOCIETY.

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C. G. Parker.....Secretary.
S. W. Williams.....Treasurer.

MEMBERS

Alcorn, E. G., Gallipolis.
Alcorn, J. B., Gallipolis.
Alcorn, J. G., Gallipolis.
Allen, H. S., Gallipolis.
Bean, Lewis C., Gallipolis.
Chadbourne, T. L., Gallipolis.
Cherrington, J. S., Pine Grove.
Clark, Alpha T., Vinton.
Eakins, Jehu, Gallipolis.
Ellsworth, Ephraim E., Gallipolis.
Ely, Charles W., Cheshire.
Gill, W. C., Gallipolis.
Hanson, J. T., Gallipolis.
Howell, R. A., Patriot.
Howell, W. E., Rio Grande.
Jacobs, Rufus D., Vinton.

Jordan, S. S., Gallipolis.
Lupton, Ella B., Gallipolis.
Miller, William, Thurman.
O'Connell, Richard T., Portsmouth.
Ohlmacher, A. P., Gallipolis.
Parker, Charles G., Gallipolis.
Parker, Claude B., Gallipolis.
Parker, Edward W., Gallipolis.
Williams, S. W., Mercerville.

GREENE COUNTY MEDICAL SOCIETY.

H. R. McClellan.....President.
H. F. Lorimer.....Vicepresident.
A. C. Messenger.....Secretary.
F. M. Kent.....Treasurer.

MEMBERS

Anderson, George, Alpha.
Brundage, A. H., Xenia.
Brundage, L. H., Xenia.
Davis, George, New Jasper.
Dice, S. D., Xenia.
Finley, W. H., Xenia.
Galloway, C. M., Xenia.
Galloway, W. A., Xenia.
Grube, R. H., Grape Grove.
Hendrixson, O. P., Yellow Springs.
Humphrey, W. H., Yellow Springs.
Jones, L. M., Jamestown.
Kent, F. M., Spring Valley.
Lackey, J. C., Jamestown.
Lindsay, F. T., Xenia.
Lorimer, Hugh F., Jamestown.
Marquart, O. M., Osborne.
Marsh, M. I., Cedarville.
McClellan, B. R., Xenia.
McClellan, H. R., Xenia.
Messenger, A. C., Xenia.
Murrell, N. G., New Burlington.
Ogan, F. W., Jamestown.
Pherson, A. V. M., Osborne.
Rouse, W. L., Paintersville.
Savage, Thomas, Xenia.
Smith, R. W., Spring Valley.
Spahr, D. E., Clifton.
Stewart, J. O., Cedarville.
Treharne, J. M., Zimmerman.
Wilson, S. S., Xenia.
Schrock, E. B., Yellow Springs.

GUERNSEY COUNTY MEDICAL SOCIETY.

W. T. Ramsey.....President.
F. W. Mitchell.....Vicepresident.
F. W. Lane.....Secretary.
H. H. Price.....Treasurer.

MEMBERS

Bradford, W. U., Cambridge.
Frame, C. A., Cambridge.
Headley, A. B., Cambridge.
Lowry, O. F., Cambridge.
Lane, F. W., Cambridge.
Moore, C. A., Cambridge.
Mitchell, F. M., Cambridge.
Ringer, J. W., Cambridge.
Ramsey, W. T., Cambridge.
Vorhees, E. E., Cambridge.

HARRISON COUNTY MEDICAL SOCIETY.

J. D. West.....President.
A. C. Groves.....Vicepresident.
J. A. McGrew.....Secretary.
M. J. Lyons.....Treasurer.

MEMBERS

Allison, W. R., Hopedale.
Crawford, L. A., Hopedale.
Custer, George, Scio.
Gordon, J. W., Bowerstown.
Grove, A. Clarkson, Jewett.
Howell, John G., Freeport.
James, Frank, Deersville.
Lyle, George W., Scio.
Lyons, Matilda J., Cadiz.
McLester, James C., Harrisville.
McGavran, Samuel B., Cadiz.
McGrew, J. A., New Athens.
Morgan, John W.. Harrisville.
Ramsey, W. C., Hopedale.
Rusk, R. P., Cadiz.
Spence, Walter S., Germano.
Wallace, John, Deersville.
West, J. D.. Hopedale.
Zellars, W. A., Freeport.

HEMPSTEAD MEMORIAL ACADEMY OF MEDICINE OF PORTSMOUTH.

W. W. Smith.....President.
M. S. Pixley.....Secretary.
S. S. Halderman.....Treasurer.

MEMBERS

Allard, Lorenzo D., Portsmouth.
Andre, Orin C., Waverly (Pike Co.)
Berndt, D. Albert, Portsmouth.
Chabot, G. W., Otway (Scioto Co.)
Cotton, David B., Portsmouth.
Edwards, Frank M., Portsmouth.
Ellis, William C., Portsmouth.
Fitch, James W., Portsmouth.
Foster, Ezekial M., Portsmouth.
Fulton, Margaret, Portsmouth.
Gorden, John F., Otway (Scioto Co.)
Halderman, Stephen S., Portsmouth.
Hall, Loren, Portsmouth.
Kline, Peter John, Portsmouth.
Locke, Lucien G., Haverhill (Scioto Co.)
McCall, Edward, Portsmouth.
McKerrihan, Sample B., Portsmouth
Micklethwait, William D., Portsmouth.
Moore, Arthur R., Portsmouth.
Osborn, G. W., Portsmouth.
Pixley, Milton S., Portsmouth.
Rardin, Joseph S., Portsmouth.
Sellards, Abraham G., Portsmouth.
Sellards, Howard C., Portsmouth.
Smith, William W., Portsmouth.
Taylor, James L., Wheelersburg (Scioto Co.)
Test, Albert L., Portsmouth.
Williams, Frank H., Portsmouth.
Williamson, Joseph C., Sciotoville (Scioto Co.)

HENRY COUNTY MEDICAL SOCIETY.

E. B. Harrison.....President.
H. P. Haag.....First Vicepresident.
O. L. Norris.....Second Vicepresident.
A. E. H. Maerker.....Secretary.
J. Bloomfield, J. Archer, S. E. Miller.....Censors.

MEMBERS

Archer, J., Holgate.
Bloomfield, J., Napoleon.
Britton, E. E., McClure.
Brubaker, J. L., West Hope.
Earp, J. F., Malinta.
Fiser, J. H., Malinta.
Gehrett, T. M., Deshler.
Haag, H. P., Liberty Center.
Haly, J. S., Napoleon.
Harrison, C. M., Napoleon.
Harrison, E. B., Napoleon.
Harrison, F. M., Napoleon.
Hilton, W. S., Pleasant Bend.
Maerker, A. E. H., Napoleon.
Martin, F. S., Napoleon.
Mecker, L. E., Holgate.
Miller, S. E., Florida.
Norris, O. L., Deshler.
Nuding, W. H., Napoleon.
Reddin, F. O., Hamler.
Rohrs, H. F., Napoleon.
Wright, G. M., Liberty Center.

HIGHLAND COUNTY MEDICAL SOCIETY.

H. A. Beeson.....President.
H. A. Russ.....Vicepresident.
J. C. Larkin.....Secretary.
A. H. Beam.....Treasurer.

MEMBERS

Anderson, A. A., Buford.
Beam, A. H., Hillsboro.
Beeson, H. A., Leesburg.
Cropper, C. C., New Market.
Dunlap, R. S., Greenfield.
Ellison, J. N., Sardinia.
Funk, M. F., Mowreystown.
Gibson, J. T., Lynchburg.
Glenn, W. W., Hillsboro.
Holmes, R. E., Leesburg.
House, Lindley F., Leesburg.
Judkins, E. S., Highland.
Kleckner, J. B., Lynchburg.
Larkin, J. C., Hillsboro.
McBride, D. N., Hillsboro.
McBride, J. D., Hillsboro.
Matthews, J. W., Buford.
McConnaughey, V. B., Hillsboro.
Mercer, J. A., Rainsboro.
Orebaugh, George E., N. Petersburg.
Rhoeten, W. A., Mowreystown.
Roberd, T. W., Bell.
Russ, H. A., Hillsboro.
Shorfe, W. J., Lynchburg.
Smith, Charles B., Hillsboro.
Trimble, R. T., New Vienna.
Wilson, W. H., Greenfield.

HOCKING COUNTY MEDICAL SOCIETY.

A. K. Smith.....President.
D. A. Rannells.....First Vicepresident.
O. V. Donaldson.....Second Vicepresident.
O. S. Wood.....Secretary.
J. B. Lyon.....Treasurer.

MEMBERS

Allen, C. O., Logan.
Beery, G. W., Logan.
Campbell, H. G., Logan.
Cox, M. E., Murray.
Dillinger, T. J., Logan.
Donaldson, O. V., Gore.
Lyon, J. B., Logan.
Rannells, D. A., Logan.
Redfern, E. F., South Perry.
Rhodes, W. S., Carbon Hill.
Rutter, J., R. F. D. No. 2, Logan.
Schwenke, A. F., Rockbridge.
Smith, A. K., Logan.
Wood, O. S., Haydenville.

JACKSON COUNTY MEDICAL SOCIETY.

J. H. Ray.....President.
D. B. Warren.....Secretary.
John F. Morgan.....Treasurer.

MEMBERS

Barrett, S. B., Byer.
Dando, E. T., Wellston.
Darling, George W., Wellston.
Davis, D. W., Berlin Cross Roads.
Drake, F. J., Leo.
Evans, Walter R., Jackson.
Ewing, G. A., Jackson.
Gahm, J. L., Jackson.
Harbarger, George H., Coalton.
Harbarger, John W., Glen Roy.
Harper, J. A., Wellston.
Harrison, C. B., Wellston.
Hughes, E. E., Oak Hill.
Hunter, Johnson S., Jackson.
Jacobs, Philander, Jackson.
Jones, E. J., Oak Hill.
Kinnison, U. L., Limerick.
McClung, John J., Jackson.
McLaughlin, Oscar, Rempel.
Morgan, John F., Jackson.
Parker, W. H., Wellston.
Plummer, Frank E., Coalton.
Ray, A. G., Byer.
Ray, E. S., Hamden Junction.
Ray, Joseph H., Coalton.
Ray, Worth, Coalton.
Shaffer, David R., Peniel.
Sylvester, John E., Wellston.
Warren, Daniel B., Wellston.
Williams, William E., Jackson.
Woodrow, Orlando M., Wellston.

JEFFERSON COUNTY MEDICAL SOCIETY.

E. Pearce .....President.
Silas O. Barkhurst .....Vicepresident.
J. R. Mosgrove.....Secretary.
Joseph Robertson .....Treasurer.

MEMBERS

Barkhurst, Silas O., Steubenville.
Collins, J. Webster, Toronto.
Floyd, James C. M., Steubenville.
Foster, Ira C., Steubenville.
Giesey, Emmet R., Toronto.
Kerr, W. E., Steubenville.
McCoy, Joseph J., Steubenville.
Miller, James E., Steubenville.
Minor, Howard C., Toronto.
Mosgrove, J. R., Steubenville.
Pearce, Enoch, Steubenville.
Podlewski, Stephen J., Steubenville.
Rea, E. H., Irondale.
Robertson, Joseph, Steubenville
VonMuralt, R., Tiltonsville.
Wood, William R., Smithfield.

KNOX COUNTY MEDICAL SOCIETY.

R. W. Colville.....President.
G. D. Arndt.....Vicepresident.
H. W. Blair.....Secretary.

MEMBERS

Ackerman, E. V., Fredericktown.
Arndt, G. D., Mt. Vernon.
Blair, H. W., Mt. Vernon.
Bradford, C. R., Danville.
Colville, R. W., Mt. Vernon.
Conrad, C. K., Mt. Vernon.
Cosner, P. H., Bladensburg.
Eley, T. L., Mt. Vernon.
Eley, W. L., Fredericktown.
Gray, J. E., North Liberty.
Humbert, Frank, Mt. Vernon.
Hyatt, E. J., Gambier.
Jefferson, T. E., Danville.
*Larimore, F. C., Mt. Vernon.
Lee, James F., Mt. Vernon.
Lewis, W. F., Martinsburg.
Mahaffey, C. M., Greersville.
Norrick, J. H., Fredericktown.
Pennell, W. W., Fredericktown.
Russell, J. E., Mt. Vernon.

*Life Member.

LAWRENCE COUNTY MEDICAL SOCIETY.

W. S. Eakman.....President.
D. C. Wilson.....Treasurer.
A. Robinson .....Secretary.

MEMBERS

Campbell, F. D., Rock Camp.
Dunn, O. B., Ironton.
Eakman, W. S., Ironton.
Ellison, Owen, Ironton.
Gould, E. P., Sheridan.
Griffith, W. L., Steece.
Gray, C. G., Ironton.
Keller, Lester, Ironton.
Lowry, A. Clark, Ironton.
Lowry, J. W., Ironton.
Marting, W. E., Ironton.
O'Neill, O. U., Ironton.
McCoy, C. W., South Point.
Moore, W. R., Ironton.
Moxley, N. K., Ironton.
Remy, J. H., Rock Camp.
Remy, T. H., Hanging Rock.
Reinhart, H. L., Ironton.

Robinson, Alfred, Ironton.
Shattuck, C. C., Ironton.
Shattuck, John, Ironton.
Stewart, D. G., Arabia.
Wells, E. E., Ironton.
White, J. M., Ironton.
Wilson, D. C., Ironton.
Wilson, E. M., Burlington.

LICKING COUNTY MEDICAL SOCIETY.

A. T. Speer.....President.
C. A. Foster.....Vicepresident.
G. W. Garrison.....Treasurer.
H. Burner Anderson.....Secretary.

MEMBERS

Anderson, H. Burner, Newark.
Barker, J. W., Newark.
Barnes, B. F., Newark.
Barnes, E. J., Granville.
Beattie, W. M., Newark.
Burke, C. A., Johnstown.
Day, H., Newark.
DeCrow, R. W., Newark.
Follett, A. K., Granville.
Foster, C. A., Newark.
Garrison, G. W., Utica.
Hatch, C. A., Newark.
Hornby, J. W., Newark.
Johnston, E. H., Alexandria.
King, C. P., Newark.
Knauss, W. H., Newark.
Larimore, James, Newark.
Latimer, J. P., Newark.
Laycock, L. C., Alexandria.
Leatherman, F. P., Outville.
Legge, C. F., Newark.
McCullough, R. E., Newark.
Miller, D. H., Newark.
Nye, W. B., Newark.
Postle, H. H., Toboso.
Rarick, M. M., Jacksontown.
Rutledge, F. A., Kirkersville.
Shirer, J. G., Newark.
Speer, A. T., Newark.
Stedern, J. P. H., Newark.
Stone, J. N., Newark.
Wagner, H. M., Newark.
Walton, J., Wilkins P. O.
Wells, C. H., Summit Station.

LORAIN COUNTY MEDICAL SOCIETY.

O. B. Monosmith.....President.
O. T. Maynard.....Vicepresident.
C. B. Wean.....Secretary.
Censors—C. H. Cushing, W. C. Bunce, A. N. Garver.

MEMBERS

Appleby, A. G., Lorain.
Baldwin, W. S., Lorain.
Beyer, G. K., Lorain.
Brown, E. O., Lorain.
Bunce, W. C., Oberlin.
Burley, S. V., Lorain.
Cameron, E., Lorain.
Cowley, R. H., Lorain.
Cox, S. S., Lorain.
Crawford, G. M., Lorain.
Cushing, C. F., Elyria.
Cushing, C. H., Elyria.

Dager, W. F., Lorain.
Garver, A. N., Lorain.
Garver, C. V., Lorain.
Gilbert, J., Lorain.
Gill, George, Ridgeville.
Gillmore, C. F., Lorain.
Hall, H. L., North Amherst.
Hart, W. E., Elyria.
Hubbell, W. B., Elyria.
Hugg, E. V., Lorain.
Maynard, O. T., Elyria.
Moffett, C. C., Lorain.
Monosmith, C. B., Lorain.
Robinson, H. C., Lorain.
Thomas, J. B., Huntington.
Thompson, J. M., Lorain.
Wean, C. B., Lorain.
Webster, A. M., Lorain.
Wheatley, W. E., Lorain.

MADISON COUNTY MEDICAL SOCIETY.

H. S. Quinn.....President.
W. H. Christopher.....First Vicepresident.
A. J. Welch.....Second Vicepresident.
A. J. Strain.....Secretary and Treasurer.
Censors—M. J. Jenkins, W. P. Kyle, M. C. Sprague.

MEMBERS

Barr, W. E., London.
Beckwith, A. S., Plumwood.
Campbell, J. A., Rebecca.
Cannon, J. L., Mt. Sterling.
Christopher, W. H., London.
Francis, Willis, Sedalia.
Gain, C. E., London.
Green, A. F., Lilly Chapel.
Jenkins, M. J., Plain City.
Johnston, J. C., West Jefferson.
Jones, W. G., Mt. Sterling.
Kyle, W. P., Big Plain.
Linton, E. L., Walnut Run.
Meade, E. B., Sedalia.
Quinn, H. S., West Jefferson.
Rodgers, Andrew, West Jefferson.
Sprague, M. C., Summerford.
Stevens, H. S., Lilly Chapel.
Strain, A. J., London.
Trimble, A. H., Mt. Sterling.
Welch, A. J., Mt. Sterling.
Wilson, M. B., London.

MARION COUNTY MEDICAL SOCIETY.

Robert Ramroth .....President.
Herman S. Rhu.....Secretary.
F. B. Sawyer.....Treasurer.

MEMBERS

Adair, John Willis, Marion.
Britton, Samuel Herbert, Marion.
Cheatham, Elizabeth Carrington, Marion.
Chisholm, Horatio, Marion.
Corey, Martha Dunn, Marion.
Crane, Alvin Melville, Marion.
Denman, William Crosby, Marion.
Dombaugh, Robert Sweeney, Waldo.
Hamilton, Lewis Dunmore, Marion.
Holmes, James Ellsworth, Agosta.
King, John Icilius, Martell.
Lewis, Robert C. M., Marion.
Martin, John Tyler, Marion.

McMurray, James Wilson, Marion.
Ramroth, Robert, Marion.
Rhu, Auguste, Marion.
Rhu, Herman Sweetser, Marion.
Richardson, Elmer Otis, Marion.
Sager, Henry Wilbur, Marion.
Sawyer, Charles Elmer, Marion.
Sawyer, Francis Burt, Marion.
Uhler, Henry L., Marion.
Weeks, Dana Oliver, Marion.

MERCER COUNTY MEDICAL SOCIETY.

G. J. C. Wintermute.....President.
C. F. Bolman.....Vicepresident.
D. H. Richardson.....Secretary.
J. E. Hattery.....Treasurer.
Censors—Joseph Sager (three years), P. F. Weamer (two years), S. R. Wilson (one year.)

MEMBERS

Bolman, C. F., Coldwater.
Brun, L. D., Celina.
Cordier, H. J., Rockford.
Downing, M. L., Rockford.
Fishbaugh, M. B., Wabash.
Hattery, J. E., Celina.
Langel, R. P., Neptune.
Mackenbach, C. W., Montezuma.
Mory, J. J., St. Henry.
Richardson, D. H., Celina.
Richardson, J. V., Fort Recovery.
Sager, Joseph, Celina.
Schirack, J. A., St. Henry.
Symons, J. P., Rockford.
Taylor, Martin, Fort Recovery.
Waters, P. F., Chattanooga.
Weamer, P. F., Coldwater.
Wilson, S. R., Celina.
Wintermute, G. J. C., Celina.

MIAMI COUNTY MEDICAL SOCIETY.

H. H. Havens.....President.
E. B. Davis.....Vicepresident.
W. N. Unkefer.....Recording Secretary.
G. E. McCullough.....Corresponding Secretary and Treasurer.

MEMBERS

Bausman, A. J., Pleasant Hill.
Bausman, S. N., Pleasant Hill.
Burnham, R. D., Piqua.
Coleman, W., Troy.
Caywood, J. R., Piqua.
Davis, E. B., Covington.
Deaton, Van S., Alcony.
Denman, H. B., Lena.
Frame, A. B., Piqua.
Grosvenor, A. W., Piqua.
Hartman, S. D., Tippecanoe.
Havens, H. H., Tippecanoe City.
Hoover, L. S., Laura.
Jennings, G., West Milton.
Kendall, H. W., Covington.
Lindenberger, L. M., Troy.
Lowe, J. W., Piqua.
McCullough, G. E., Troy.
Miller, A. C., Covington.
Murray, J. C., Piqua.
O'Ferrall, R. M., Piqua.
Pearson, H. R., West Milton.
Prince, J. W., Piqua.
Senour, J. G., Troy.

Tennell, J. B., Piqua.
Thompson, W. R., Troy.
Unkefer, W. N., Piqua.
Wright, T. M., Troy.

MONROE COUNTY MEDICAL SOCIETY.

A. F. Latta ..... President.
J. W. Norris ..... Vicepresident.
W. E. Fulton ..... Secretary and Treasurer.

MEMBERS

Fulton, W. E., Graysville.
Huth, F. C., Woodsfield.
Keyser, C. R., Miltonsburg.
Korner, A. H., Woodsfield.
Latta, A. F., Graysville.
Lowe, D. W., Antioch.
Norris, J. W., Woodsfield.
Stewart, G. W., Jerusalem.
Webb, William G., Cameron.

MUSKINGUM COUNTY MEDICAL SOCIETY.

C. A. Dunn ..... President.
C. W. Hanna ..... Vicepresident.
Wm. Klemm ..... Secretary.
C. P. Sellers ..... Treasurer.

MEMBERS

Baron, F. S., Zanesville.
Bateman, W. C., Zanesville.
Brush, E. C., Zanesville.
Cass, Edward, Dresden.
Crossland, J. C., Zanesville.
Culbertson, L. R., Zanesville.
Dunn, C. A., Stovertown.
Fleming, J. D., Frazersburg.
Geyer, H. R., Zanesville.
Hanna, C. U., Zanesville.
Higgins, Charles, Sonora.
Hill, Anna M., Zanesville.
Kelley, S., Zanesville.
Klemm, William, Zanesville.
Knapp, C. C., Zanesville.
Lane, G. W., Sago.
Mathews, D. J., Zanesville.
Melick, W. A., Zanesville.
Rambo, C. M., Zanesville.
Sealover, William, Zanesville.
Sellers, C. P., Zanesville.
Sutton, H. T., Zanesville.
Templeton, A. M., Zanesville.
Walker, G. W. W., Roseville.
Warburton, G., Zanesville.
Yost, Guy, Zanesville.

PERRY COUNTY MEDICAL SOCIETY.

N. T. McTeague ..... President.
J. G. McDougal ..... Secretary.

MEMBERS

Allen, Edgar Dempsey, Crooksville.
Axline, Frederick Adolphus, Saltillo.
Axline, John D., Shawnee.
Barnes, B. Frank, Newark (Licking.)
Book, Rodney Dent, Corning.
Branson, Walter W., New Lexington.
Clemson, George William, Thornville.
Clouse, Lewis, Somerset.
Cozad, H. S., Rendville.
Croft, James Wilson, Corning.

Davis, John L., Shawnee
Donaldson, John Henderson, Gore (Hocking.)
Dupler, William Preston, Crooksville
Folk, Peter, Deavertown (Morgan.)
Gordon, Patrick Augustine, Junction City.
Holcomb, Calvin Burrows, Corning.
Lerch, Adelbert Verne, Pleasantville (Fairfield.)
McDougal, John Gilbert, New Lexington.
McTeague, Neil Thomas, New Lexington.
Miller, James, Congo.
Miller, Robert Williamson, Hemlock.
Moody, Isaac Alonzo, Junction City.
Richards, Alva, New Lexington.
Snyder, George Conrad, Moxahala.
Stoneburner, Wesley Franklin, Moxahala.
Thomas, Benjamin Allen, Rushville (Fairfield.)
Winters, Barnet Edgar, New Straitsville.
Wright, James Forrace, New Lexington.

PREBLE COUNTY MEDICAL SOCIETY.

F. M. Michael.....President.
P. T. Gans.....Vicepresident.
A. C. Shaw.....Treasurer.
P. M. Sater.....Secretary.

MEMBERS

Brown, W. G., Lewisburg.
Carter, H. H., West Alexandria.
Christian, W. I., Verona.
Coombs, J. W., Camden.
Couley, C. W., Eaton.
Cusick, C. A., Lewisburg.
Drayer, S. P., West Alexandria.
Fritz, J. H., West Alexandria.
Gans, P. T., West Florence.
Hawley, C. A., Gettsburg.
Hunter, A. C., West Alexandria.
Lehman, C. W., Eaton.
Lyne, G. L., New Paris.
McQueen, D. W., Camden.
Michael, F. M., Eaton.
Mundhank, A. O., West Alexandria.
Mundhank, L. R., West Alexandria.
Patterson, C. E., Morning Sun.
Quinn, J. L., Eaton.
Sater, P. M., Gratis.
Shaw, A. C., Eaton.
Singer, A. E., Lewisburg.
Welsh, E. E., Eaton.

RICHLAND COUNTY MEDICAL SOCIETY.

M. T. Lore.....President.
S. E. Findley.....Vicepresident.
J. Lillian McBride.....Secretary.
Emma Millikin .....Treasurer.

MEMBERS

Alban, S. N., Mansfield.
Anderson, W. S., Shelby.
Baughman, George W., Mansfield.
Beall, J. T., Ontario.

Boles, R. S., Mansfield.
Burnes, M., Mansfield.
Davis, M. J., Mansfield.
Erwin, A. J., Mansfield.
Findley, S. E., Mansfield.
Hedges, J. S., Mansfield.
Hyde, A. F., Shelby.
Kipp, A. E., Mansfield.
Lockard, J. A., Mansfield.
Loughridge, W. E., Mansfield.
Lore, M. T., Shelby.
Maglott, John, Mansfield.
McBride, J. Lillian, Mansfield.
McCullough, A. H., Mansfield.
Millikin, Emma, Ontario.
Miller, George W., Mansfield.
Peppard, D. W., Mansfield.
Stevens, J. L., Mansfield.
Stewart, J. S., Mansfield.
Sutter, Frances R., Shelby.
Yoder, J. A., Lucas.
Zebold, A. M., Shelby.

SENECA COUNTY MEDICAL SOCIETY.

G. L. Hoege.....President.
E. H. Porter.....Vicepresident.
H. B. Gibbon.....Treasurer.
R. B. Leister.....Secretary.

MEMBERS

Anders, C. I., Old Fort.
Benner, C. T., Tiffin.
Benner, W. H., Tiffin.
Chamberlain, R. C., Tiffin.
Fellers, D. O.
Focht, W. H., Tiffin.
Gibbon, H. B., Tiffin.
Hendershott, R. R., Tiffin.
Hoege, G. L., Fostoria.
Jump, J. S., Tiffin.
Leister, R. B., Tiffin.
Magers, C. F., Tiffin.
McCollum, E. J., Tiffin.
Miller, N. C., Fostoria.
Mumaw, W. S., Kansas.
Norris, J. H., Fostoria
Overholt, E. L., Fostoria.
Porter, E. H., Tiffin.
Rahla, E. E., Republic.
Schwartz, A. C., Tiffin.
Steel, R. G., Melmore.
Uberroth, M. W., New Reigel.
Wenner, H. L., Tiffin.
Williard, G. P., Tiffin.
Zahm, Bertha, Fostoria.

SHELBY COUNTY MEDICAL SOCIETY.

E. A. Yates.....President.
D. R. Silver.....Vicepresident.
J. W. Costolo.....Secretary and Treasurer.

MEMBERS

Burner, G. W., Hardin.
Cable, T. B., Pemberton.
Carter, J. M., Jackson Center.
Costolo, J. W., Sidney.
Dine, C. L., Minster.
Geyer, J. L., Sidney.
Harbour, C. W. B., Anna.
Hussey, M. F., Sidney.
Johnston, C. E., Sidney.
LeMasters, O. O., Kellersville.
Martin, G. E., Anna.
McAuliff, D. L., Botkins.

McBurney, Edward, Jackson Center.
Mulholland, William, Sidney.
Pepper, L., Loramies.
Sharpe, B. M., Sidney.
Silver, D. R., Sidney.
Smoot, C. E., Pemberton.
Yates, E. A., Kirkwood.

STARK COUNTY MEDICAL SOCIETY.

William C. Steele.....President.
Esther M. Tyrrell.....Treasurer.
F. W. Gavin.....Secretary.

MEMBERS

Baker, W. O., Louisville.
Banker, D. F., Canton.
Barnes, S. S. P., Massillon.
Becker, W. H., North Industry.
Biechele, Robert A., Canton.
Brant, E. D., Canton.
Burns, Katherine, Canton.
Calhoun, F. P., Canton.
Corl, H. E., Middlebranch.
Crane, Chas. A., Canton.
Culbertson, V. W., Massillon.
DaHinden, F., Canton.
DeWitt, J. P., Canton.
Exline, C. E., Canton.
Eyman, H. C., Massillon.
Faulk, H. W., Canton.
Ferciot, Bert J., Canton.
Findley, Henry P., Massillon.
Flickinger, L. E., Canton.
Folk, E. S., Canton.
Foulks, M. C., Canton.
Foulks, W. S., Canton.
Fraunfelter, J., Canton.
Gans, D. W., Massillon.
Gardner, D. S., Canton.
Gavin, F. W., Canton.
Goodrich, Charles H., Sandyville.
Graber, C. Lee, Mt Eaton.
Hart, F. E., Canton.
over, C. M., Alliance.
Hoover, Chas. S., Alliance.
Hudson, J. F., Canton.
Kahler, J. F., Canton.
Lawrence, Jacob G., N. Lawrence.
McConkey, Wm. A., Canton.
McIlravy, D. L., Magnolia.
March, E. J., Canton.
March, H. A., Canton.
Marchand, J. F., Canton.
Miller, T. Clarke, Massillon.
Morrow, E. O., Canton.
Morrow, E. P., Canton.
Myers, Elmer G., Canton.
Pennock, Frank, Marlboro.
Pontius, Marie G., Canton.
Portman, O. E., Canton.
Post, S. B., Canton.
Pumphrey, R. J., Massillon.
Reed, J. L., Canton.
Reed, T. J., Massillon.
Reed, Thomas F., Massillon.
Rheil, J. A., Malvern.
Ricksicker, O. C., Wilmot.
Roach, Jno. A., Alliance.
Santee, L. B., Marlboro.
Schilling, C. E., Canton.
Schiltz, C. E., Canton.
Schuffell, H. M., Canton.
Snively, Geo. W., W. Lebanon.
Snively, John H., West Lebanon.

Spratt, W. R., Malvern.
Steele, W. C., New Berlin.
Talmadge, Eugene, Canton.
Temple, James C., Alliance.
Tressel, John K., Alliance.
Walker, A. B., Canton.
Walker, Chauncy A., Louisville.
Williamson, Fred B., Massillon.
Wolf, Cullen P., Massillon.
Zinninger, George, Canton.

SUMMIT COUNTY MEDICAL SOCIETY.

J. H. Seiler.....President.
W. W. Leonard.....Vicepresident.
E. W. Barton.....Secretary.
C. E. Norris.....Treasurer.

MEMBERS

Barton, E. W., Akron.
Cozad, H. I., Akron.
Davidson, H. S., Barberton.
Eberhard, L. R. C., Akron.
Fehr, P., Akron.
Foltz, A. B., Akron.
Grant, J. G., Akron.
Held, C. E., Akron.
Hill, C. T., Akron.
Humphrey, C. M., Akron.
Jacobs, H. H., Akron.
Keller, W. L., Akron.
Mather, E. L., Akron.
Mentenjohl, E. A., Akron.
Middleton, C. B., Cuyahoga Falls.
Millikin, C. W., Akron.
Norris, C. E., Akron.
Rankin, G. T., Akron.
Rankin, I. C., Akron.
Seiler, J. H., Akron.
Sickerman, A., Akron.
Simpson, F. H., Akron.
Sippy, A. F., Akron.
Stevenson, M. D., Akron.
Sweitzer, E. L., Akron.
Taggart, H. D., Akron.
Theiss, G. A., Akron.
Theiss, H. C., Akron.
Underwood, E. S., Akron.
Weaver, E. M., Akron.
Weeks, E. A., Akron.

TOLEDO AND LUCAS COUNTY ACADEMY OF MEDICINE.

Julius H. Jacobson.....President.
H. E. Smead.....Secretary.
Willis W. Grube.....Treasurer.

MEMBERS

Aftel, Gustav, 1344 Nebraska ave.
Alter, Francis W., 338 Summit st.
Anderson, William V., 9030 Oakwood ave.
Bainbridge, Kathryn M., Michigan st.
Baird, Jessie L., 901 Hicks st.
Bamberger, Herman, 704 Stickney.
Beckwith, Seth W., East Side.
Bessey, J. M., 1814 Adams st.
Bethards, Paul F., 105 Vermont ave.
Betts, Charles, Jefferson ave.
Bodman, Lewis H., 1140 Jefferson.
Bowman, David E., 1619 Western ave
Brand, Walter W., 216 Michigan ave.
Brockaway, P. B., 241 12th ave.
Chapman, George L., 1710 M-

Chapman, William C., 1710 Madison.
Cherry, William, 1314 Cherry st.
Chollette, 626 Front st.
Clark, L. D., 3243 Monroe st.
Coldham, William W., 336 Michigan.
Cole, C. B., 1511 Detroit ave.
DeVilbiss, Allen, 1220 Jackson ave.
Dice, W. G., 242 Michigan ave.
Dickey, W. A., 10 Hartford Blk.
Dolloway, L. M., 1604 Collingwood.
Doherty, E. W., 2496 Detroit st.
Donnelly, James, 220 Michigan ave.
Drown, L. M., 3237 Monroe st.
Duncan, James A., 1107 Broadway.
Ely, J. D., 1153 Oak st., East Side.
Faber, C. A., 2030 Ashland ave.
Fisher, Albert W., 815 Erie st.
Fisher, Charles E., 815 Erie st.
Fisher, William H., 704 Madison st.
Fox, Joseph F., 407 Spitzer Bldg.
Gardner, John, 627 Mulberry st.
Gardiner, W. G., 1455 Erie st.
Gillette, W. J., 1613 Jefferson ave.
Girardot, A. J., Cherry and Bancroft st.
Green, Howard L., 2542 Fulton st.
Greenfield, E. J., 418 Spitzer Bldg.
Grosh, L. C., 232 Michigan st.
Grube, W. W.,1502 Collingwood ave.
Gundrum, W. H., 2041 Erie st.
Haag, D. E., Liberty Center.
Harpster, Charles M., cor. Madison.
Hasencamp, O., Cherry and Ontario
Hamlin, G. E., 4 Adams Blk.
Hathaway, Harrison, 1233 Miami st., East Side.
Haynes, J. P., 734 Indiana ave.
Heltman, E. W., 10 Hartford Blk.
Henzler, Charles J., 714 East Bancroft st.
Hobart A. D., 500 Oak st., East Side.
Howe, J. D., 205 Wayne Bldg.
Hubbard, Thomas, 205 Ontario st.
Iford, D. W., Cherry st.
Jacobson, Julius H., 709 Madison st.
Jerome, M. A., Franklin ave. and Bancroft st.
Jones, Grace, 305 Wayne Bldg.
Keller, John G., 2 Adams Blk.
Keller, Thomas F., 423 Spitzer Bldg.
Kimbell, O. W., 3111 Lagrange st.
Kitchen, F. A., 2137 Jefferson ave.
Klauser, F. E., 520 Cherry st.
Landman, Otto, 230 Michigan st.
LaSalle, James J., Michigan st.
Law, Mary E., 2313 Ashland ave.
Lawless, James J., 1205 Broadway.
Lawless, James J., Jr., Detroit st.
Leslie F. A., Franklin ave.
Louy, Charles, Cherry and Superior.
Lukens, Charles, Jefferson st.
Main, O. M., Broadway.
Marshall, D. M., 208 Main st., East Side.
Martin, J. V., 526 Front st., East Side.
McVety, Alfred E., 1514 Madison.
Melchers, Edward, 1004 Jefferson ave.
Miller, C. S., 2404 Cherry st.
Miller, Louis, 242 Michigan st.
Mills, C. H., 204 Fassett st., East Side.
Minton, F. P., Paine ave. and Bakewell st.
Monroe, C. E., 740 Dorr st.
Moore, V. O., 1103 Starr ave., East Side.
Myers, Park L., 1921 Franklin ave.
Nelles, Howard W. H., 359 East Broadway.
Noble, H. E., 808 East Broadway.
Nolen, Helen M., 418 Erie st.
North, John, 517 Madison st.
Pyle, J. S., 2123 Ashland ave.
Reed, Calvin H., 537 Oliver st.
Rieg, Philip S., 338 Summit st.

Root, Henry A., 417 Superior st.
Salvail, J. D., 609 Main st., East Side.
Schneizler, A. C., Hotel Madison.
Schutt, Lewis W., 529 Mulberry st.
Sears, O. T., 2136 Madison st.
Sharpe, W. J., 1238 Dorr st.
Smead, H. E., 810 West Center ave.
Smith, Anna Groff, 1309 Utah st., East Side.
Smith, Charles N., 234 Michigan st.
Snyder, Walter H., 211 Ontario st.
Steinfeld, Albert L., 228 Indiana ave.
Stewart, C. E., 2203 Lawrence st.
Stewart, W. D., Michigan st.
Storz, Christian, 524 Nebraska ave.
Tait, P. G., 514 Adams st.
Thorn, S. S., Lagrange and Superior.
Tobey, H. A., Toledo State Hospital.
Tucker, E. D., 709 Madison st.
VanPelt, Charles, 1819 Jefferson ave.
Wagar, Charles P., 450 Spitzer Bldg.
Walker, R. J., 637 Main st., EastSide.
Watson, J. L., 420 Superior st.
Wickham, William, 222 Michigan st.
Wilson, Dale, 427 Euclid ave., East Side.
Wilson, F. P., 427 Euclid ave., East Side.
Woods, Elizabeth, 305 Wayne Bldg.
Wright, John A., 1812 Cherry st.
Wuestefeld, Ernest, Curtis st.
Young, Nelson H., Toledo State Hospital.
Zbinden, Theodore, 431 Nebraska ave.

TUSCARAWAS COUNTY MEDICAL SOCIETY.

T. H. Brannan.....President.
A. C. Dempster.....Vicepresident.
J. A. McCollam.....Treasurer.
Martha Shalter .....Secretary.

MEMBERS

Anderson, B. G., Uhrichsville.
Barton, R. S., New Philadelphia.
Brannan, T. H., Canal Dover.
Brown, B. F., New Philadelphia.
Dempster, A. C., Uhrichsville.
Dunn, E. S., Port Washington.
Finnical, F. F., Dennison.
Gentsch, D. C., New Philadelphia.
Gooding, J. J., Gilmore.
Gordon, Thomas, Uhrichsville.
Groves, J. E., Uhrichsville.
Hays, S. B., New Comerstown.
Helms, F. G., Uhrichsville.
Hendershot, B. C., New Philadelphia.
Hitchcock, J. L., Uhrichsville.
Hosick, W. R., New Comerstown.
Hughes, L. H., Dennison.
Kistler, G. B., New Comerstown.
Kurtz, C. D., Tuscarawas.
Lower, G. F., Canal Dover.
McCollam, Dr., Uhrichsville.
Miller, A. T., Shanesville.
Patterson, C. U., Uhrichsville.
Richards, Nancy D., New Philadelphia.
Richards, T. J. W., New Philadelphia.
Sawyer, C. H., Mineral City.
Schutzbach, J. C., Strasburg.
Shalter, Martha, Canal Dover.
Shanley, E. B., New Philadelphia.
Siffert, T. C., New Comerstown.
Smith, J. M., New Philadelphia.
Wagner, P. M., Canal Dover.
White, C. C., Mineral City.
Wolf, E. A., Dennison.

VINTON COUNTY MEDICAL SOCIETY.

W. R. Moore.....President.
O. S. Cox.....Vicepresident.
C. O. Dunlap.....Secretary and Treasurer.
Censors—W. T. Cherry, J. W. Murphy, A. A. Boal.

MEMBERS

Boal, A. A., Zaleski.
Cherry, W. T., McArthur.
Cox, O. S., Allensville.
Dunlap, C. O., McArthur.
Henry, W. H., Hamden Junction.
Moore, W. R., Swan.
Murphy, J. W., Eagle Mills.
Rannells, C. S., Zaleski.

WARREN COUNTY MEDICAL SOCIETY.

Herschel Fisher .....President.
Maria M. Romine.....Vicepresident.
T. E. Keelor.....Secretary.
H. J. Death.....Treasurer.

MEMBERS

Blair, B. H., Lebanon.
Clagett, P. D., Ridgeville.
Death, H. J., Franklin.
Evans, Otho, Franklin.
Fisher, Herschel, Lebanon.
Hough, C. A., Lebanon.
Keelor, T. E., Lebanon.
Lieuellen, J. O., Maineville.
Mardis, A. W., Lebanon.
McCready, James, Monroe.
Mulford, James, Lebanon.
Phillips, John T., Oregonia.
Randall, C. G., Harveysburg.
Roberts, A. C., Morrow.
Romine, M. M., Harveysburg.
Sherwood, Thomas, Waynesville.
Spence, A. B., South Lebanon.
Stevens, E. S., Lebanon.
Ward, J. W., Lytle.
Williams, D. A., Franklin.
Witham, J. E., Kings Mills.
Wright, A. T., Blue Ball.
Wright, J. M., Red Lyon.

WOOD COUNTY MEDICAL SOCIETY.

H. L. Byington.....President.
M. A. McKendree.....First Vicepresident.
A. P. Black.....Second Vicepresident.
F. D. Halleck.....Secretary.
S. St. John.....Treas-

MEMBERS

Alford, J. B., Grand Rapids.
Armstrong, E. E., Sylvania.
Black, A. P., Bradner.
Bowers, I. S., Perrysburg.
Byington, H. L., Rising Sun.
Foltz, G. W., North Baltimore.
Halleck, F. D., Bowling Green.
Holst, E. B., Rossford.
Jump, H. M., Dowling.
McKendree, Lyda, Bowling Green.
McKendree, M. A., Bowling Green.
Mercer, A. L., Bowling Green.
Price, William H., Stony Ridge.
Roether, H. R., Perrysburg.
Snyder, J. C., Bowling Green.
Stitt, J. J., Rising Sun.
St. John, C. S., Bowling Green.
Trichler, W. S., Bowling Green.

Constitution

ARTICLE I.—NAME OF THE ASSOCIATION.

Name.

The name and title of this organization shall be the OHIO STATE MEDICAL ASSOCIATION.

ARTICLE II.—PURPOSES OF THE ASSOCIATION.

Purposes.

The purpose of this ASSOCIATION shall be to federate and bring into one compact organization the entire medical profession of the State of Ohio, and to unite with similar Associations in other States to form the American Medical Association; with a view to the extension of medical knowledge, and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests; and to the enlightenment and direction of public opinion in regard to the great problems of state medicine; so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES.

Component Societies.

Component Societies shall consist of those County Medical Societies which hold charters from this ASSOCIATION.

ARTICE IV.—COMPOSITION OF THE ASSOCIATION.

Composition.

SECTION 1. This ASSOCIATION shall consist of Members, Delegates and Guests.

Members.

SEC. 2. MEMBERS. The members of this ASSOCIATION shall be the members of the Component County Medical Societies.

Delegates.

SEC. 3. DELEGATES. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective Component County Societies in the House of Delegates of this ASSOCIATION.

Guests.

SEC. 4. GUESTS. Any distinguished physician not a resident of this State may become a Guest during any Annual

Session upon invitation of the ASSOCIATION or its Council, and shall be accorded the privilege of participating in all the scientific work for that Session.

ARTICLE V.—HOUSE OF DELEGATES.

House of Delegates.

The House of Delegates shall be the legislative and business body of the ASSOCIATION, and shall consist of (1) Delegates elected by the Component County Societies, and (2), *ex-officio*, the officers of the ASSOCIATION as defined in this Constitution.

ARTICLE VI.—SECTIONS AND DISTRICT SOCIETIES.

Sections.

The House of Delegates may provide for a division of the scientific work of the ASSOCIATION into appropriate Sections, and for the organization of such Councilor-District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of Component County Societies.

District Societies.

ARTICLE VII.—SESSIONS AND MEETINGS.

Sessions. Meetings.

SECTION 1. The ASSOCIATION shall hold an Annual Session, during which there shall be held daily not less than two General Meetings, which shall be open to all registered members, delegates and guests.

SEC. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE VIII.—OFFICERS.

Officers.

SECTION 1. The officers of this ASSOCIATION shall be a President, four Vice-Presidents, a Secretary, a Treasurer, and ten Councilors.

Term of Office.

SEC. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary, Treasurer and Councilors shall be elected for terms of five years each, the Councilors being divided into classes so that two shall be elected each year. All of these officers shall serve until their successors are elected and installed.

Election.

SEC. 3. The officers of this ASSOCIATION shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is

Eligibility.

not in attendance upon that Annual Session and who has not been a member of this ASSOCIATION for the previous two years.

ARTICLE IX.—FUNDS AND EXPENSES.

Assessments.

Expenses.

Funds for meeting the expenses of the ASSOCIATION shall be arranged for by the House of Delegates by an equal per capita assessment upon each County Society to be fixed by the House of Delegates, by voluntary contribution, and from the profits of its publications. Funds may be appropriated by the House of Delegates to defray the expenses of the Annual Sessions, for publication, and for such other purposes as will promote the welfare of the ASSOCIATION and the profession.

ARTICLE X.—REFERENDUM.

Referendum.

The General Meeting of the ASSOCIATION may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the General Meeting, submit any such question to the membership of the ASSOCIATION for a final vote; and if the persons voting shall comprise a majority of all the members, a majority of such vote shall determine the question, and be binding upon the House of Delegates.

ARTICLE XI.—THE SEAL.

Seal.

The ASSOCIATION shall have a common Seal, with power to break, change or renew the same at pleasure.

ARTICLE XII—AMENDMENTS.

Amendments.

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been sent officially to each Component County Society at least two months before the session at which final action is to be taken.

By-Laws

CHAPTER I.—MEMBERSHIP.

SECTION 1. All members of the Component County Societies shall be privileged to attend all meetings and take part in all of the proceedings of the Annual Sessions, and shall be eligible to any office within the gift of the ASSOCIATION. **Membership.**

SEC. 2. The name of a physician upon the properly certified roster of members, or list of delegates, of a chartered County Society which has paid its annual assesment, shall be *prima facie* evidence of his right to register at the annual session in the respective bodies of this ASSOCIATION. **Qualification.**

SEC. 3. No person who is under sentence of suspension or expulsion from any Component Society of this ASSOCIATION, or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this ASSOCIATION, nor shall he be permitted to take any part in any of its proceedings until such time as he has been relieved of his disability. **Disability.**

SEC. 4. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the Component Society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge which shall be evidence of his right to all the privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an Annual Session until he has complied with the provisions of this section. **Registration.**

CHAPTER II.—ANNUAL AND SPECIAL SESSIONS OF THE ASSOCIATION.

SECTION 1. The ASSOCIATION shall hold an Annual Session at such time and place as has been fixed by the House of Delegates at the preceding Annual Session. **Annual Session.**

SEC. 2. Special sessions of either the ASSOCIATION or House of Delegates shall be called by the President at his discretion or upon petition of twenty delegates. **Special Session.**

CHAPTER III.—GENERAL MEETINGS.

General Meetings.

SECTION 1. The General Meetings shall include all registered Members, Delegates, and Guests, who shall have equal rights to participate in the proceedings and discussions; and, except guests, to vote on pending questions. Each General Meeting shall be presided over by the President, or in his absence or disability, or at his request, by one of the Vice-Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President and the annual orations, and the entire time of the Session, so far as may be, shall be devoted to papers and discussions relating to scientific medicine.

Functions.

SEC. 2. The General Meeting shall have authority to create committees or commissions for scientific investigations of special interest and importance to the profession and public, and to receive and dispose of reports of the same; but any expense in connection therewith must first be approved by the House of Delegates.

Program.

SEC. 3. Except by special vote, the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed.

Time limit.

SEC. 4. No address or paper before the ASSOCIATION, except those of the President and Orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor except by unanimous consent more than once on any subject.

Papers.

SEC. 5. All papers read before the ASSOCIATION shall be its property. Each paper shall be deposited with the Secretary when read, and if this is not done it shall not be published. Every author may have the right to print his paper in medical journals of his own selection, as well as in the Transactions.

CHAPTER IV.—HOUSE OF DELEGATES.

House of Delegates.

SECTION 1. The House of Delegates shall meet annually at the time and place of the Annual Session of the ASSOCIATION, and shall so fix its hours of meeting as not to conflict with the first General Meeting of the ASSOCIATION, or with the meeting held for the address of the President and the annual orations, and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so far as is consistent with their duties. If the business

interests of the ASSOCIATION and profession require, it may meet in advance, or remain in session after the final adjournment of the General Meeting.

Ratio of Representation

SEC. 2. Each Component County Society shall be entitled to send to the House of Delegates each year one delegate for every 100 members, and one for each fraction thereof, but each County Society holding a charter from this ASSOCIATION, which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate.

Quorum.

SEC. 3. A majority of the registered delegates shall constitute a quorum, and all of the meetings of the House of Delegates shall be open to members of the ASSOCIATION.

Duties—Scientific.

SEC. 4. It shall, through its officers, through the Council, and otherwise, give diligent attention to and foster the scientific work and spirit of the ASSOCIATION, and shall constantly study and strive to make each Annual Session a stepping-stone to future ones of higher interest.

Material.

SEC. 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

Organizing.

SEC. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing interest in such County Societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality, and shall continue these efforts in every county of the State, until every physician who can be made reputable has been brought under medical society influence.

Fraternal.

Educational.

SEC. 7. It shall encourage postgraduate work in medical centers, as well as home-study and research, and shall endeavor to have the results of the same utilized and intelligently discussed in the County Societies.

Representative.

SEC. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance

with the Constitution and By-Laws of that body in such manner that not more than one-half of the Delegates shall be elected in any one year.

Charters.

SEC. 9. It shall, upon application, provide and issue charters to County Societies organized to conform to the spirit of this Constitution and By-Laws.

Multiple County Societies.

SEC. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for County Societies, until such counties may be organized separately.

Councilor Districts.

SEC. 11. It shall divide the counties of the State into ten Councilor Districts, and, when the best interests of the ASSOCIATION and profession will be promoted thereby, organize in each a district medical society, to meet midway between the Annual Sessions of this ASSOCIATION. Members of the chartered county societies, and none others, shall be members of such district societies. When so organized, from the Presidents of such district societies shall be chosen the Vice-Presidents of the ASSOCIATION, and the Presidents of the county societies of the district shall be the Vice-Presidents of such district societies.

Committees.

SEC. 12. It shall have authority to appoint committees for special purposes from among members of the ASSOCIATION who are not members of the House of Delegates. Such committees may report to the House of Delegates in person, and may participate in the debate on their reports.

Revision.

SEC. 13. It shall approve all memorials and resolutions issued in the name of the ASSOCIATION before the same shall become effective, providing it shall not make void the verdict of a referendum.

Report.

SEC. 14. It shall present a summary of its proceedings to the last general meeting of each annual session, and shall publish the same in the Transactions.

CHAPTER V.—ELECTION OF OFFICERS.

Elections.

SECTION 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect.

Nominations.

SEC. 2. The House of Delegates on the first day of the Annual Session shall select a Committee on Nominations

consisting of ten delegates, no two of whom shall be from the same Councilor District. It shall be the duty of this committee to consult with the members of the ASSOCIATION and to hold one or more meetings at which the best interests of the ASSOCIATION and of the profession of the State for the ensuing year shall be carefully considered. The committee shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the names of three members for the office of President and of one member for each of the other offices to be filled at that annual session. No two candidates for President shall be named from the same county.

SEC. 3. The report of the Nominating Committee and the election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the second day of meeting of the Annual Session. **Time.**

SEC. 4. Nothing in this chapter shall be construed to prevent additional nominations being made by members of the House of Delegates. **Reservation.**

CHAPTER VI.—DUTIES OF OFFICERS.

SECTION 1. The President shall preside at all meetings of the ASSOCIATION and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver an annual address at such time as may be arranged; shall give a deciding vote in case of a tie; and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the County Societies, and in making their work more practical and useful. **President.**

SEC. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of the death, resignation or removal of the President, the Vice-Presidents shall succeed to the presidency in the order of their election. **Vice-Presidents.**

SEC. 3. The Treasurer shall give bond for the trust reposed in him, whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the ASSOCIATION, together with bequests and donations. He shall, under the direction of the House of Delegates, sell or lease any estate belonging to the ASSOCIATION, and execute the necessary papers; and shall, in general, subject to such **Treasurer.**

direction, have the care and management of the fiscal affairs of the ASSOCIATION. He shall pay money out of the Treasury only upon a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands. He shall charge upon his books the assessments against each Component County Society at the end of the fiscal year; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him.

Secretary.

SEC. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the programs for and attend all meetings of the ASSOCIATION and of the House of Delegates, and he shall keep minutes of their respective proceedings in separate record books. He shall be custodian of all record books and papers belonging to the ASSOCIATION, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the ASSOCIATION which come into his hands. He shall provide for the registration of the members and delegates at the Annual Sessions. He shall keep a card-index register of all the legal practicians of the State by counties, noting on each his status in relation to his County Society, and upon request shall transmit a copy of this list to the American Medical Association for publication. In so far as it is in his power he shall use the printed matter, correspondence and influence of his office to aid the Councilors in the organization and improvement of the County Societies, and in the extension of the power and usefulness of this ASSOCIATION. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall act as Chairman of the Committees on Scientific Work and on Publication. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient, it is desirable that he should receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

CHAPTER VII.—COUNCIL.

SECTION 1. The Council shall hold daily meetings during the Annual Session of the ASSOCIATION and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councilors. It shall meet on the last day of the Annual Session of the ASSOCIATION for reorganization and for the outlining of work for the ensuing year. At this meeting it shall elect a Chairman and Secretary, and it shall keep a permanent record of its proceedings. It shall, through its Chairman, make an annual report to the House of Delegates at such time as may be provided. **Council.**

SEC. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession, and for improving and increasing the zeal of the County Societies and their members. He shall make an annual report of his doings, and of the condition of the profession of each county in his district, to each annual session of the House of Delegates. The necessary traveling expenses incurred by such Councilor in the line of the duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expense in attending the Annual Session of the ASSOCIATION. **Duties—Individual.**

SEC. 3. Collectively the Council shall be the Board of Censors of the ASSOCIATION. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the Component Societies, or to this ASSOCIATION. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or of a County Society, upon which an appeal is taken from the decision of an individual Councilor. Its decision in all such cases shall be final. **Collective.**

SEC. 4. The Council shall have the right to communicate the views of the profession and of the ASSOCIATION in regard to health, sanitation and other important matters to the public and to the lay press. Such communications shall be officially signed by the Chairman and Secretary of the Council, as such. **Powers.**

CHAPTER VIII.—COMMITTEES.

Standing Committees.

SECTION 1. The Standing Committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Publication.

A Committee on Nominations.

A Committee on Arrangement, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Scientific Work.

SEC. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be a member and Chairman, and shall determine the character and scope of the scientific proceedings of the ASSOCIATION for each session, subject to the instructions of the House of Delegates or of the ASSOCIATION, or to the provisions of the Constitution and By-Laws. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented, which shall be adhered to by the ASSOCIATION as nearly as practicable.

Public Policy and Legislation.

SEC. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of the public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and in local, State and national affairs and elections, it shall utilize every organized influence of the profession to promote the general welfare. Its work shall be done with the dignity becoming a great profession and with that wisdom which will make effective its power and influence. It shall have authority to be heard before the entire ASSOCIATION upon questions of great concern at such time as may be arranged during the Annual Session.

Publication.

SEC. 4. The Committee on Publication shall consist of three members, of which the Secretary shall be Chairman, and shall have referred to it all reports on scientific subjects, and all scientific papers and discussions heard before the ASSOCIATION. It shall be empowered to curtail or abstract

papers and discussions, and any paper referred to it which may not be suitable for publication in the Transactions may be returned to the author. The committee shall have authority to arrange for the publication and distribution of the Transactions after receiving competitive bids, and shall use diligence in getting them into the hands of members. All papers read before the ASSOCIATION shall be the property of the ASSOCIATION.

SEC. 6. The Committee on Nominations shall be appointed and perform its duties in accordance with the provisions of Chapter V, Section 2, of these By-Laws. **Nomination.**

SEC. 7. The Committee of Arrangements shall consist of the Component Society in the territory in which the Annual Session is to be held. It shall, by committees of its own selection, provide suitable accommodations for the meeting places of the ASSOCIATION and of the House of Delegates, and of their respective committees, and shall have general charge of all the arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require. **Arrangements.**

CHAPTER IX.—ASSESSMENTS AND EXPENDITURES.

SECTION 1. An assessment of one dollar per capita on the membership of the Component Societies is hereby made the annual dues of this ASSOCIATION. The Secretary of each County Society shall forward its assessment together with its roster of all officers and members, list of delegates, and list of non-affiliated physicians of the county to the Secretary of this ASSOCIATION thirty days in advance of each Annual Session. **Annual Dues.**

SEC. 2. Any County Society which fails to pay its assessment, or make the reports required, on or before the date above stated, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the ASSOCIATION or of the House of Delegates until such requirements have been met. **Penalty for Failure to Remit.**

SEC. 3. All motions or resolutions appropriating money shall specify a definite amount, or so much thereof as may be necessary for the purpose indicated, and must be approved by the Council and House of Delegates on a call of the ayes and noes. **Appropriations.**

CHAPTER X.—ETHICAL PRINCIPLES.

Ethics.

The ethical principles governing the members of the American Medical Association shall govern the conduct of members of this ASSOCIATION in their relations to each other and to the public.

CHAPTER XI.—RULES OF ORDER.

Rules of Order.

The deliberations of this ASSOCIATION shall be governed by parliamentary usage as contained in Robert's Rules of Order, unless otherwise determined by a vote of its respective bodies.

CHAPTER XII.—COUNTY SOCIETIES.

County Societies—Affiliation.

SECTION 1. All County Societies now in affiliation with the State Association or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, upon application to the House of Delegates, receive a charter from and become a component part of this ASSOCIATION.

Organization.

SEC. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no Component Society exists, and charters shall be issued thereto.

Charters.

SEC. 3. Charters shall be issued only upon approval of the House of Delegates and shall be signed by the President and Secretary of this ASSOCIATION. The House of Delegates shall have authority to revoke the charter of any Component County Society whose actions are in conflict with this Constitution and By-Laws.

One Society in one County.

SEC. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the Councilor for the district if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Qualification for Membership.

SEC. 5. Each County Society shall judge of the qualification of its own members, but as such societies are the only portals to this ASSOCIATION and to the American Medical Association, every reputable and legally registered physician who is practicing, or who will agree to practice, nonsectarian

medicine shall be eligible to membership. Before a charter is issued to any County Society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

Appeal.

SEC. 6 Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right of appeal to the Council and the House of Delegates.

Hearings.

SEC. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a Board and as individual Councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Removals.

SEC. 8. When a member in good standing in a Component Society moves to another county in this State, his name, upon request, shall be transferred without cost to the roster of the County Society into whose jurisdiction he moves.

SEC. 9. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

Functions and Duties.

SEC. 10. Each County Society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county. Systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Work.

SEC. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possible. The younger members shall be especially encouraged to do post-graduate and original-research work, and to give the Society the first benefit of such labors. Official position and other preferments shall be unstintingly given to such members.

Delegates.

SEC. 12. At some meeting in advance of the annual session of this ASSOCIATION each County Society shall elect a delegate or delegates to represent it in the House of Delegates of this ASSOCIATION in the proportion of one delegate to each one hundred members, or fraction thereof, and the Secretary of the Society shall send a list of such delegates to the Secretary of this ASSOCIATION, at least ten days before the Annual Session.